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AN EVALUATION OF SURGICAL TREATMENT OF INTERNAL DERANGEMENTS OF THE KNEE IN AN ARMY GENERAL HOSPITAL

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And
GEORGE G. GILL, M. D.
New Orleans, Louisiana

Since the start of the tremendous expansion of the armed forces that accompanied the recent great war, many excellent papers on the knee have been published and the subject of internal derangements appears to have been adequately covered. This paper presents a study of 60 consecutive patients who were admitted to an Army General Hospital and subsequently operated on for internal derangements of the knee joint during a 9-month period. The series is being presented with the hope that a few points not previously stressed in other papers will contribute to a better evaluation of the results of such surgery from a military standpoint.

These cases represented .79% of all patients admitted to the hospital for all causes, 2.4% of all surgical service admissions, 6% of all operations performed, and 32% of all open orthopedic operations done during this period. During the 9 months, 95 patients with a diagnosis of internal derangement of the knee were admitted. All were referred from Station or Post Hospitals and had been sent in with a diagnosis of a derangement needing surgical correction. In only a very few instances did we differ with the previously made diagnosis. Of the 35 not operated on, 16 were discharged from the Army because their injuries had been incurred before their Army service began, and, due to the presence of psychoneurotic traits, the patients were not considered good operative risks as far as future active service was concerned. Ninteen (19) were returned to limited duty not requiring prolonged marching, drilling, or hiking, because we thought their condition was not sufficiently severe to warrant the prolonged hospitalization necessary for convalescence, or because they did not desire operation and could do useful duty in a limited service capacity without surgical correction.

The 60 operations were done on 58 white and 2 Negro patients. We feel that we have not seen a sufficient number of Negro patients to conclude that knee derangements occur less frequently in Negroes than in the white race, as has been suggested by other writers. During the period of this series there were 4441 white and 634 Negro admissions to the hospital for all causes.

The 58 males and 2 females in this study represent the same incidence of knee operations for internal derangements as the admission rate for the two sexes for all causes.

The average age of the patients was 26 years, with the 3 youngest being 18 and the oldest, 46. The right knee was involved in 32 cases and the left in 28. There were 46 enlisted men and non-commissioned officers, 12 male and 2 female officers. The 14 officers represented 1.6% of officers admitted to the hospital for all reasons and the 46 non-officers represented .68% of all non-officers admitted for all reasons.

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In the 60 cases, one patient dated his initial injury 11 years before and the one with the most recent derangement admittted and subsequently operated on was injured only 6 days before. Thirty-three (33), or 55%, of the patients reported the first injury to the knee as having occurred 6 months, or less, previous to admission. Nineteen (19), or 32%, had had their initial injury one year or more and 10 of these were first injured 3 years before being referred to us. Two (2) of the patients who had osteochondritis dissecans had never had a definite injury but had a history of knee pain approximately 6 months. Six (6) related a history of multiple minor injuries over several years that could not be definitely accepted as etiologic factors.

The original injuries were the usual knee-twisting types received, in most of the cases, in competitive sports and in physical training. Forty-six (46), or 76.6%, of the patients received their initial injury while doing active army service, and, therefore were considered as injured in line of duty. Fourteen (14), or 23.4% had a disabled knee prior to entering active service in the Army. They were operated upon, however, because it was thought that either they could be reclaimed and made useful soldiers, or that their condition had probably been aggravated by Army duty. Most of these patients with a history of knee injury prior to Army service were given a thorough preoperative evaluation by the neuropsychiatric service.

In order to increase quadriceps strength and overcome measurable atrophy, physical therapy was always instituted before operation. An attempt was uniformly made to build up the atrophied thigh to within a ¼-inch circumference of the opposite thigh. As a rule, the more remote the original knee injury, the longer the period of preoperative exercise necessary to overcome the muscular deficiency. There were 3 exceptions to this rule in the series. These 3 patients had recently injured knees which could not be fully extended regardless of prolonged traction, and the resulting restricted range of motion prevented them from exercising properly. Consequently, they were operated on before they had or could overcome their quadriceps atrophy. The average period of preoperative hospitalization for the 60 patients was 19.6 days. This did not include 3 patients accepted from other professional sections, who had been originally hospitalized for other reasons and, later, accepted on the orthopedic section because of their knee derangement.

The surgery performed consisted, in each instance, of exploratory arthrotomy with meniscectomy or removal of loose bodies, or both, as the case might be. We always made the skin incision as small as possible, as we found that the skin was sufficiently relaxed in most patients, particularly under spinal anesthesia, to be moved up and down with retractors, so that the capsule could be opened longitudinally for twice the length of the skin incision. If necessary, a double capsular incision could be made by moving the skin incision posteriorly with small retractors. The operative field can be fully visualized in this manner, if 2 assistants are used instead of one. Seldom did we make a skin incision over 2 inches in length. For obvious psychologic reasons, the value of a small, insignificant-looking, postoperative scar cannot be over-emphasized.

At operation, 7 of the cases diagnosed as dislocations, or tears of a meniscus, were found to have no recognizable pathology. In one case, the incision was closed without removing the previously suspected medial meniscus. The patient continued to have swelling and pain in the knee which was not relieved by physical therapy treatments. His knee, eventually, was reexplored and an oblique longitudinal tear of the posterior third was found. This was not discernible through our anterior incision until the meniscus was mobilized by detaching it anteriorly and around its periphery. Following this, we removed 2 other medial menisci, even though we did not see the etiologic factor for their symptoms in the anterior two-thirds. We found a similar situation in each instance. This suggests that once the diagnosis of a tear of a medial meniscus is made and operation performed, the meniscus should be completely visualized by a posterior capsular incision, if the tear is not recognized in the anterior two-thirds and no other pathology is seen in the joint.

In another patient suspected of having a tear of the medial meniscus, no pathology was recognized at operation. In this instance the cartilage was removed, and, several weeks later, symptoms of a lateral

meniscus tear began. At reexploration the lateral meniscus was removed even though no recognizable pathology was found. Postoperatively, this patient developed an abnormal antero-posterior mobility of slight degree, and, eventually, discharge became necessary. We feel that removal of both semilunar cartilages from one knee always results in definite disability and should be avoided unless both are torn. In two other instances a medial meniscus tear was suspected and no pathology was recognized at operation. Another patient, who was thought to have a tear of the lateral meniscus, was found, at operation, to have a medial meniscus torn. Three (3) patients suspected of having tears of the lateral meniscus did not show any recognizable pathology and one of these later developed a small popliteal bursa.

The 7 cases in this series not showing demonstrable pathology at operation reduces our preoperative accuracy to 88%. We feel that a prime function of a General Hospital in the knee problem is to aid further in determining those patients with an internal derangement of the knee who should *not* be operated on while in the Army, rather than to operate on all knees sent in with a previously diagnosed derangement needing surgery.

The orthopedic staff of the General Hospital handling these patients did not feel that it could properly evaluate the correct proportion of patients with knee disabilities to the number of patients who should receive surgical correction. The out-patient clinic contributed only a very small fraction of the total number of patients admitted. The majority of patients were received as transfers from post and station hospitals, and this is often several weeks, or even months, following their injury. All have been diagnosed as needing surgery and those thought not to need it were kept there. By the time the transferred patients got to this hospital, all acute signs have usually subsided, and, if their knees were not "locking" or x-rays showed no joint changes, and no instability is demonstrable, it was frequently difficult for the staff to confirm the transfer diagnoses. In a few instances, where we were unable to make a definite diagnosis, we temporarily transferred the patient to the advanced reconditioning unit under mild field conditions for a period of orthopedic observation by our own staff. The activity of the patient there often caused slight swelling or locking, or some other sign that aided greatly in making a diagnosis. He was then returned to the ward for further care and disposition.

Our preoperative diagnoses of the 60 cases were as follows: 37, or 61%, were considered to be ruptures or tears of the medial meniscus; 6, or 10%, were ruptures or tears of the lateral meniscus; 2, or 3%, were cysts of the lateral meniscus; and 16, or 26%, were osteochondritis dissecans of the patella, femoral condyle, or both, with or without medial meniscus ruptures or tears. Six (6), or approximately 10%, of the cases were considered preoperatively to be complicated by a certain degree of knee instability as a result of tears or relaxation of the cruciate or collateral ligaments or both.

The 37 cases diagnosed as tears or ruptures of the medial meniscus included 15 cases which proved to be bucket-handle tears. Five (5) of the cases were complicated by having one or more loose bodies in the knee joint, with defects on the lateral aspect of the medial femoral condyle or the articular surface of the patella, or both. Thirteen (13) of the 16 osteochondritis dissecans cases proved to have normal menisci.

Postoperatively, we employed mechanics waste as a pressure dressing, started quadriceps setting exercises 5 minutes out of every 2 hours while awake after the second day, and started weight bearing on the third day.[1] Occasionally, in spite of pressure dressings, swelling of the knee developed and persisted. In such instances, the patient was allowed to stay in bed several days longer than usual, that is, until swelling had subsided. Otherwise, early weight bearing and early quadriceps exercises were used. We employed no postoperative fixation or traction. All of the 53 patients in this series, whose final disposition was determined by us, were given 30-day furloughs before being sent back

1. Terhune, S. R.; Eddleman, T. S.; Thompson, S. B., and Read, B. S.: The Care of the Knee Following Excision of a Meniscus, J. Bone & Joint Surg. 25:663-669 (July) '43.

to duty. This was used as a test to see how well their knee would stand up under normal use. The advanced reconditioning unit, with its gradually increasing calisthenics and marching program was also used as an additional test before their return to rigorous field duty.

We felt that our officer patients were more cooperative and demonstrated fewer neurotic tendencies postoperatively, so recovered more quickly. All of the 14 in this series returned to duty. Eight (8), or 57%, returned to full duty and 6, or 43%, returned to limited duty: 3 because of relaxed cruciates, one because of symptomatic arthritis in the joint, one because of symptomatic pes planus, and one because of knee discomfort of unknown etiology. In the total series, 90% of the patients disposed of at this hospital returned to duty, 45.7% to full duty and 54.3% to limited duty. The postoperative time until return to duty for officers was an average of 75 days as compared to the general average of the total series of 91 days.

The 2 female Nurse Corps officers returned to duty more quickly than any of the other officers, 57 and 61 days respectively. At the time of their return to duty, they had what appeared to be excellent results. Subsequently, one has been reported as being reclassified to limited duty because of knee discomfort.

Of the 14 patients who had their knee disability prior to Army service, only one was discharged from active duty postoperatively, and this was due to an unrecognized psychoneurosis. His knee result appeared excellent. It is possible that this patient would not have been operated on had a neuropsychiatric evaluation been done before surgery. Of the 13, or 96%, returned to duty, 6 returned to full duty with apparently excellent knees, and 7 to limited duty. One of these last 7 (an officer) had a good result with no knee symptoms but had to be restricted in type of duty he could do because of the presence of preexisting symptomatic pes planus. So, judged by our standards of less than ¼-inch atrophy of the thigh, no swelling, no pain, no limitation of motion, and no quadriceps weakness, 8, or 57%, appeared to have excellent results, although only 43% returned to full duty. Exactly the same percentage returned to limited duty, not including the officer so classified because of painful feet. Of the others, 2 were sent to limited duty because of persistent quadriceps atrophy and slight weakness, one because of persistent synovitis, 2 because of anterior cruciate instability, and one because of symptomatic arthritis in the joint.

Of the 46 patients considered to have had their initial knee injury while in the Army, or knee disability aggravated by Army service, the oldest, aged 46, with 23 years active service, was retired postoperatively because of severe, symptomatic arthritis in multiple joints. Three (3) were discharged because of neuropsychiatric reasons, although the knee result, in each instance, appeared sufficiently good for the patient to have been able to do limited duty at least. The results in 7 are unknown, due to their transfer to another hospital before convalescence was completed. The remaining 35, or 89.7%, were returned to duty, 16, or 45.7%, to full duty, and 19, or 54.3%, to limited duty. Five (5) of those returned to limited duty were so classified because of persistent atrophy and weakness of the quadriceps, 6 because of laxity of anterior cruciates, and 8 because of the presence of neuropsychiatric symptoms. The 4 patients discharged from the Army represented approximately 10.3% considered to be of no further benefit in any type of service.

It is evident from these statistics that there was no appreciable difference in disposition postoperatively of the patients injured before Army service began from those injured while in the Army. However, in our own experience, we have not agreed with Cleveland, Willien and Doran,[2] who stated, in their recent excellent paper, that whether or not injury to a knee was incurred in line of duty was not an important factor in the patient's rehabilitation. The "Line of Duty No" cases in our series, several of whom were recent inductees, were, with 2 exceptions, selected for operation only after the neuropsychiatric consultant had advised us that the patients were sufficiently stable emotionally for surgery to

2. Cleveland, M.; Willien, L. J., and Doran, P. C.: Surgical Treatment of Internal Derangement of the Knee Joint Among Troops in Training at Fort Jackson, South Carolina, Am. Acad. Orthop. Surgeons, Lect., pp. 392-398, '44.

be considered. We feel that this procedure offset poor results that otherwise would possibly have shown up. On the other hand, several patients who received their initial knee injuries while in the Army, consequently making their disability the Army's responsibility, were operated on with doubt of their returning to duty as a result of the presence of recognizable neurotic traits. Therefore, our statistics for patients who received their injuries during civilian life appear better postoperatively, in regard to their return to duty, due to the greater freedom afforded in selecting them preoperatively than is afforded in the case of patients injured after becoming soldiers.

Of the 53 patients whose final disposition was determined at this hospital, the average postoperative hospital stay for 46 of the 48 returning to duty, who were in the hospital for their knee condition alone, was 91 days with the longest period being 177 days and the shortest 57 days. This figure includes furlough days. Twenty-two (22) returned to full duty and 26 to limited duty. Out of the original series of 53 patients disposed of, approximately 40% returned to full duty, 50% to limited duty, and 10% were discharged. Combining preoperative and postoperative hospital time for those patients who returned to duty, there was an average of 110.6 days. This does not take into consideration time in hospitals previous to transfer to this hospital.

There was no appreciable difference in the convalescent period or final disposition in the group having their etiologic injuries recently or many years before admission. The osteochondritis dissecans cases were disposed of on an average of 5 days sooner than the cartilage cases. Both conditions responded to surgery almost exactly the same, as far as final disposition was concerned.

Many surgeons in the service early in the expansion of the armed forces did not fully appreciate the additional psychiatric problems involved in treating soldiers. As a consequence, more knees were operated on than now and neuroses became evident following the surgery more frequently than had been true in civilian life. This resulted in a poor showing, so far as the patients doing further satisfactory duty was concerned. Fortunately, we learned through our unfortunate experiences of the past 5 years that more careful screening of patients preoperatively from the psychiatric aspect was necessary. Also, we became more hesitant in selecting for operation patients with torn menisci who had a complicating cruciate laxity. Occasionally, such a patient, with an exceptionally strong desire for relief from his knee discomfort, might be considered for operation because it is at times possible to compensate for slight cruciate laxity by postoperative development of the extrinsic musculature to a point where the knee is actually more stable than it had been before operation. However, if such soldiers are able to do limited duty without operation, it is usually better, from a military standpoint, to permit them to do so. Following operation, *none* of our patients with a complicating cruciate laxity was able to return to full duty. They were sent to limited duty or discharged.

Follow-up since disposition of these cases was very poor because most of the patients returned to duty with units in other sections of the country. These units changed location often and many were sent to a foreign assignment, which further complicated satisfactory correspondence. Most of those we heard from were still having some knee symptoms and several turned in again, either to this hospital or elsewhere.

In conclusion, we believe that knee surgery for the correction of internal derangements should be avoided in every instance in the Army, as far as is possible, as long as preservation of manpower is important. We do not imply that knee surgery has not been generally well performed, but the extended period of time away from duty and the poor postoperative results from a military standpoint are obvious. Frequently, patients turned in at this hospital months and even years postoperatively after having had surgery elsewhere. In most such instances, the result appeared satisfactory in regard to joint function, but the patient used his operation, either consciously or unconsciously, as a defense mechanism to avoid further hazardous or onerous duty. Eventually, another discharge, because of continued psychosomatic or hysterical symptoms, resulted, and another man was lost as far as the Army was concerned. We

feel sure that a number of our cases reported in this series have had to be handled in a similar manner at other hospitals they have turned into, subsequent to our returning them to duty. We have heard from 3 soldiers who returned to limited duty and later were reclassified and did full combat duty in an active battle zone. Possibly there were a few others, but the general outlook for such results in our experience was gloomy. We think that conservatism is advisable and that the fewer the operations on internal derangements of the knee performed in the Army, at least during war, the better the results from such surgery will appear.

HYPERSENSITIZATION, A PHASE IN CHRONIC INFECTIOUS DISEASES

A CLINICAL STUDY

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During forty-seven years of general practice we have had an opportunity to study a large group of atypical cases which have been characterized by recurring symptoms referable to all systems. In these cases, scientific evidence for an accurate diagnosis is lacking. Many of these patients have been carefully studied in various reputable clinics throughout the country without receiving any lasting benefit, and often without alleviation of symptoms. In some instances, however, reports of negative findings have been of value to us in eliminating generalized or localized infections in the typical phase, thus facilitating differential diagnosis.

We have been impressed with the observation that allergic manifestations or syndromes are associated with certain chronic infections, although the exact nature of this relationship has been somewhat obscure. It is our belief that diseases tending to chronicity not only present allergic manifestations of intrinsic origin, but they also constitute the basic primary factor in the management of patients who are affected by external allergens, as, for example, pollenosis hay fever, or asthma.

That allergic manifestations occur in the course of many acute and chronic infections is evident from a glance at the literature. The hypersensitive phase has been noted in arthritis[1] and in tuberculosis.[2] Kolmer[3] draws attention to the allergic phase of gonorrhea, diphtheria, pneumonia, smallpox, ringworm, and many other infectious diseases. Coca et al,[4] discuss the role of skin tests with bacterial substances in the diagnosis of asthma. Criep[5] states that "bacterial allergy is a form of sensitiveness to secretory products of bacterial growth (tuberculin and fungi). The mechanism is not known. Previous infection with the respective organism is essential in this form of allergy." He states further that it is estimated that approximately 50 per cent of the population show allergic manifestations. About 10 per cent of these are of the familial type, and about 30 or 40 per cent show allergic manifestations of the acquired type, or mild unusual reactions to given substances, a form of allergy referred to as minor allergy.

A logical explanation of the state of "hyperimmunity" is found in the concept

1. Rackemann, F. M.: The Role of Allergy in Arthritis, New England J. Med. 208:1347-1351, 1933.

2. Dienes, L.: Comparative Study of the Anaphylactic and Tuberculin Types of Hypersensitization. II. Influence Exerted by the Nature of the Antigen in the Development of the Different Types of Hypersensitiveness, J. Immunol. 20:333, 1931.

3. Kolmer, J. A.: Infection Immunity and Biologic Therapy. W. B. Saunders Co., Philadelphia, 3rd ed. 77, 714-720.

4. Coca, A. F.; Walzer, M., and Thommen, A. A.: Asthma and Hay Fever in Theory and Practice. The Role of Cutaneous Tests with Bacterial Substances in the Diagnosis of Asthma. Charles C. Thomas, Springfield, Ill., 1931, p. 263.

5. Criep, L. H.: Essentials of Allergy. J. P. Lippincott, Philadelphia, 1945 pp 2 and 30.

that intrinsic allergens (by-products of the action of the infective organism upon the natural defense mechanism of the host) eventually stimulate the antibodies to such an extent as to bring about an allergic state. The question naturally arises: Is there any relationship between this intrinsic allergy and the allergy resulting from extrinsic factors (inhalants, ingestants, etc.)? It has not come to our attention that experimental investigation has discovered a relationship, but, from our clinical observations, we believe that there is little doubt that a definite relationship exists. It is the purpose of this paper to demonstrate the practical application of this concept in the management of allergy.

Malaria and brucellosis stand foremost among the unsolved problems in medicine. Huddleson,[6] in a study of brucellosis using all available tests, found that 10.3 per cent of 8,124 individuals showed evidence of past or present infection. Gershenfeld and Butts[7] found that the incidence of brucellosis in the population of the United States was 8.7 per 100,000 while of 11,858,859 cattle tested, 8.0 per cent were found to be reactors.* These authors believe that the vast majority of cases of brucellosis that occur in man remain unrecognized. Atypical malaria also is seldom recognized clinically and fails to yield to parasite demonstration. The major incidence of malaria in this phase, therefore, represents the accumulation of cases in atopic individuals in whom the disease is so altered that the symptoms are no longer specific.

The present paper is concerned with the hypersensitization phase in malaria and brucellosis. We have made every effort to demonstrate the presence of chronicity in each case studied and have included only those cases which presented definite evidence of allergy. In both conditions the control of the disease, as diagnosed by allergic skin tests or the therapeutic test for malaria, brought about marked improvement in the health of the patient, and not infrequently the complete disappearance of the allergic symptoms. This was dramatically demonstrated in asthma, hay fever, sinusitus, etc.

SYMPTOMATOLOGY

The local, focal, and general manifestations in these atypical cases are practically limitless in number and may be easily confused with those of many local and systemic disease entities. On account of the allergic nature of the symptoms, the exact character of the disease escapes detection by the usual diagnostic procedures. As a rule, the patients are afebrile and most of them carry on their customary activities although they are frequently indisposed. The most characteristic manifestation is the recurrence of attacks. The onset is sudden and often severe, followed by a gradual decline in severity, and intervals elapse before the next recurrence. In a few severe cases we have observed marked hypertension (systolic and diastolic), with definite cardiovascular damage and repeated cardiac crises; insomnia, tachycardia, anginoid attacks, and general malaise are among the conditions noted. Chronic low blood pressure, however, has been noted in the vast majority of cases. The entire vasomotor system is exhausted in consequence of repeated allergic attacks. In all severe cases we have observed bright red dots of telangiectasis in the skin, and the patients state that they occur in crops. In the absence of controls we merely call attention to this phenomenon as being suggestive of obstructed capillary loops resulting from allergic edema in this phase of an infection.

DIAGNOSIS

Since malaria and brucellosis, on account of their persistent and relapsing nature, are among the most frequent primary causes of overactivity of the immune mechanism, as evidenced by allergic symptoms, we have employed *skin tests* with antigen for differential diagnosis, at the same time utilizing the *therapeutic test* for malaria. The value of the allergic skin test for brucellosis has been confirmed by many in-

6. Ruddleson, L. F.; Munger, M.; Gould S. E., and Paulson, D.: Study of Brucella Infection and Immunity in Humans, Am. J. Trop. Med. 17:863-880, 1937.

7. Gershenfeld, L., and Butts, D. G. A.: Survey of Undulant Fever and Bangs Disease in the United States, Am. J. Med. Sc. 194:178-684, 1937.

*The determination of the prevalence of brucellosis in cattle was begun in a program inaugurated in 1934 as an emergency measure by the Agricultural Administration. Hardenbergh reported that infection was found in 43 per cent of herds tested (Hardenbergh, J. G.: Am. J. Pub. Health 26:597-605, 1936).

vestigators.[8, 9, 10, 11] In all suspected cases we begin testing with the antigens representing the most probable infections in the individual case. We use brucellosis antigen, together with one of the stock group bacterins. For example, in respiratory cases the corresponding group is used in skin testing.

Clinically, it would seem that the stock group bacterins are equivalent to the group antigens employed in testing and treatment of inhalant allergy; and are retained since they represent antigens for prophylaxis as well as for desensitization to other bacterial proteins which, all agree, participate sooner or later as the patient is made progressively worse by complicating factors in the allergic injury. This idea is in accord with the general advice to precede desensitization treatment by injection of the respiratory group while the patient is in the throes of an attack of asthma. It is also in accord, we suggest, with the employment of antigens in pollenosis wherein species specific effect is recognized for treatment and prophylaxis by the use of one or more of the varieties of pollen to act as antigen for the entire species, as in grass-pollen cases.

The following antigens are kept at hand for allergic skin testing:

Stock Group Bacterins Mixed

Respiratory Group

- Friedlander bacilus
- Micrococcus catarrhilis
- Streptococcus 9559 A
- Penumococcus
- Streptococcus
- Straphylococcus aureus
- Straphyllococcus albus

Colon Group Mixed

- Colon bavillus
- Streptococcus
- Pneumococcus
- Straphylococcus aureus
- Straphylococcus albus

Single Type Group

- Streptococcus hemolyticus and viridans

Neisser Group Mixed

- Gonococcus
- Staphylococcus aureus
- Staphylococcus albus
- Streptococcus I.
- B. coli
- Pseudodiphtheria bacillus
- (1. hemolytic, non-hemolytic and viridans)

Pertussis Group Mixed

- Pertussis bacillus (Bordet)
- Influenza bacillus
- Streptococcus (hemolytic, non-hemolytic, and viridans)

Pneumococcus group

- Catarrhalis
- Staphylococcus albus and aureus

Single Type

- Pneumococcus, type I
- Pneumococcus, type II
- B. coli
- Straphylococcus albus
- Staphylococcus aureuss
- Trichinella extract
- Tuberculin O. T.—dilution "C"
- Ascaris extract

The skin test for brucellosis consists of the intracutaneous injection of 0.10 cc. of the mixed strains of Brucella abortis bacterin over the deltoid muscle (preferably the left). The reaction is checked not earlier than four or five days after injection. We regard the appearance of a definite area of allergic edema *beneath* the skin at the site of injection as highly important diagnostic evidence. We then outline the area of allergic edema by delicate palpation and mark it with ink at the circumference, thus representing the wheal and erythema on the *under side* of the skin —the direction from which the allergen-antibody impact takes place—in contrast to the positive reaction resulting from extrinsic atopens, and occupying a much larger area. It represents in our concept an artificially induced shock tissue area or focus of the same character as that produced by the condition for which we are testing. It also constitutes a repository dose for effecting hyposensitization. Discoloration from the lysis of red cells (the violent discoloration of Dienes) with palpable edema under the skin, together with focal and general response, is regarded as evidence of a positive reaction.

8. Goldstein, J. D.: Cutaneous Reactions in Diagnosis of Undulant Fever, J. Clin. Invest. 13:209-218, 1934.

9. Favorite, G. C., and Culp, C. F.: Intradermal Tests in Undulant Fever; Reactions in Healthy and Infected Individuals, J. Lab. & Clin. Med. 20:522-526, 1935.

10. Keller, A. E.; Pharris, C., and Gaub, W. H.: Undulant Fever; Comparative Value of Certain Diagnostic Tests, South. M. J. 21:1-7, 1938.

11. McGinty, A. P., and Gambrell, W. E.: New Int. Clinics. Vol. 1, Series 2, page 16. J. B. Lippincott & Co., Philadelphia, 1939.

The patient is informed that, in the event of a positive reaction to the brucellosis test, his symptoms may be expected to recur abruptly and with greater severity and shock. This artificially induced attack will be followed by definite improvement and relief after several days, and this relief may be expected to last for a period varying from several weeks to as many months, or as long as the induration resulting from the injection can be felt.

Diagnostic evidence of the existence of the hypersensitization phase consists in the *focal* and *general* reactions induced by the parenteral injection of the particular protein. Further evidence is the relief from symptoms which follows the stimulating of antibodies in the circulation. These antibodies neutralize the foreign-acting protien (intrinsic allergens of disease) before it can make its impact upon the central mechanism. In a few cases of migraine, and in a few cases of intense and continuous urticaria, the skin test for brucellosis brought about definite improvement at once. Since these patients had proved intractable to routine palliative measures, we injected into the deltoid muscle 0.05 cc. of undiluted antigen which aggravated the symptoms. Within 24 hours prompt relief followed in most instances and was maintained by desensitization treatment. Experience has taught us, however, that by repeating shock doses of antigen for hasty relief, we are inviting a prolonged aggravation of symptoms, and must delay desensitization treatment for too long a period, while the patient naturally becomes discouraged.

In the employment of antigens for the diagnosis of brucellosis in the hypersensitization phase, we are concerned not merely with the *local* reactions in the skin but attach significance also to the well defined reactions beyond the point of injection, generally referred to as the "shock tissue areas," or foci in the organ or organs manifesting the recurring allergic symptoms, and the marked relief lasting for several weeks. In fact, the injection is employed intracutaneously as a means of inducing an aggravated "echo" of the symptoms—exceptions in cases receiving the shock dose just after severe attacks when the shock areas are temporarily exhausted.*

For the differential diagnosis of malaria in the atypical phase, therapeutic testing with specific drugs (quinine, atabrin, quinidine, etc.) is employed. The drug (or a rotation of the various drugs mentioned) is administered over the period of time required to cover three successive segmentation cycles of the parasites when the merozoites are released into the circulation. In atypical relapses this period covers three 7-day cycles, or 21 days, *as judged clinically.* The fullest response is generally noted after the fourth week. The fourth paroxysm does not occur, but instead marked improvement is observed. The final confirmation or elimination of malaria by this test rests upon a high degree of certainty or relapses occurring in increasing proportion within a period of several months.[12] Relapses are especially apt to occur in spring and fall, or when the general vitality of the individual is lowered from any cause.† These specific drug tests are contraindicated for patients whose vitality is extremely low.

It is our belief that the recognition of chronic malaria is often missed because there is a tendency to rely entirely on the demonstration of parasites in the circulating blood stream. Since thousands of our fighting men are returning home suffering

*The evidence in support of this method of diagnosis may be doubted. The explanation is that by inducing the condition for which we make the test, and observing the sharp aggravation of symptoms, focally and generally, 48 hours regularly after the diagnostic shock dose, followed by marked relief lasting over a period of time during which the allergic edema remains active under the site of the skin test, we have diagnostic criteria unequalled in medicine.

12. Deaderick, W. R.: A Practical Study of Malaria. W. B. Saunders Co. Philadelphia, 1909, or Nelson's Loose Leaf Medicine, Vol. II, p. 250-251.

†Angus McDonald (Malaria Problems of Today, in Nelson's Loose-Leaf Living Medicine, New York, Thomas Nelson & Sons, 1926, vol. 7, pp. 299-345) reported that 10 grains (0:65 Gm.) of quinine daily for thirty days is followed by relapse in 30 per cent of cases within two months. He further states that while absolute removal of parasites from the blood, therefore "a parasite cure" cannot be guaranteed thus, yet the subjugation of relapse is a matter of taking quinine, and the termination of relapse is proportionate to the period of taking quinine.

from malaria contracted in the tropical countries of the Pacific and while on maneuvers in certain heavily endemic areas of the United States, this problem becomes increasingly important. For a detailed discussion of the diagnosis and treatment of malaria, the reader is referred to a previous publication, *Chronic Malaria: A Clinical Consideration* (Fonde', G. H., and Fonde', E. C., Arch. Int. Med. 64:1156-1169, December, 1939). The present paper is a continuation of the discussion of "masked" forms of malaria presented in the previous publication.

TREATMENT

The therapeutic test for malaria is discontinued if the brucellosis skin test has resulted in a positive reaction. The other tests with bacterial antigens and with inhalants, ingestants, etc., are discontinued temporarily, to be resumed if indicated after the degree of relief from the allergic brucellosis reaction has been ascertained, and for the purpose of determining the presence of further complicating allergenic factors.

Desensitization with brucellosis antigen is then begun. Since we are dealing with a highly reactivating antigen (brucellosis bacterin mixed strains) we have found it necessary to prepare seven vials of successive decimal dilutions: 1-10, 1-100, 1-1,000, 1-10,000, 1-100,000, 1-1,000,000, and 1-10,000,000. Treatment is begun only after the last traces of the reaction from the diagnostic skin test with undiluted antigen have disappeared; that is, when erythema and discoloration have disappeared and when the transudate and exudate under the skin are no longer palpable. Unless this precaution is taken, the patient may actually be made more sensitive and the symptoms will be aggravated, while progressive hyposensitization should not be expected, even though immediate relief has been obtained and has lasted for a short time.

The first step is to determine the "tolerance" dose. The amount of antigen which causes a readily palpable induration under the skin at the end of 7 days establishes the tolerance dose. However, if this induration is still present at the end of another 7-day interval, the dosage was overtolerance. It will then be necessary to delay further injection of the antigen until the edema has disappeared. To make palpation easier, the deep tissues under the point of injection should be massaged briskly and firmly for a few minutes. If the repository dose of antigen is still active, the massage causes increased tension, somewhat cystic and clearly limited—the same phenomenon as is observed after rubbing an urticarial wheal on the surface of the skin.

If the last injection, then, is not felt readily, we begin desensitizing injections with the decimal dilution next below that one showing tolerance at the end of the 7-day period. We usually begin desensitization with 0.80 cc. of the 1-100,000 dilution. If the symptoms manifested prior to the skin test have been aggravated for a longer period than three hours, or if general shock lasting more than three hours has resulted, no further injection of that dosage is given. A longer period is allowed to elapse before starting again with a reduced amount of antigen. We have learned by experience that an injection of antigen for securing progressive hyposensitization must be less than the tolerance dose, and that the tolerance dose never remains fixed. In brief, shock doses for diagnostic purposes increase hypersensitization, tolerance doses fail to desensitize, and only injections of antigen *below* the tolerance dose gradually hyposensitize.

If activity of the focus lasts two weeks, the next dose indicated is the second weaker decimal dilution. Each successive dose should be checked carefully at the end of 7 days (or regular time approximating 7 days) in order to readjust the dosage downward as the patient manifests edematous reactions at the injection point lasting longer than 7 days. This gradual tapering off treatment requires patience and an explanation to the patient since the symptoms are gradually reduced in severity, as compared with the abrupt relief following the shock dose for diagnosis. The readjustments to lower decimal dilutions of antigen in severe cases as a rule have required injections as low as 0.8 of the 1-100,000 dilution in order to keep below tolerance, and for perennial dosage at intervals of four

weeks. When local, focal, or general manifestations have been aggravated by overdosage of antigen, several weeks should elapse without injection; that is, if the patient has been made worse for longer than three days.

Supportive Measures. In all cases, especially of chronic damage to the digestive-metabolic function, particular attention to the general health of the patient is by no means second in importance to the specific treatment. Emphasis should be placed on the protective foods, and they should be supplemented by vitamin and mineral concentrates, iron and arsenic, and/or bismuth subsalicylate intramuscularly in 5 doses at weekly intervals. For the great variety of distressing allergic manifestations, palliative measures are necessary pending the accomplishment of desensitization; for example, epinephrin hydrochloride given hypodermically, or ephedrin, or aminophyllin, followed quickly by a tablet of pot. iod. theocalcin (potassium iodide gr. 1½—theobromin calcium salicylate, grains 7½) given at 2 to 4 hour intervals until the patient has been relieved of itching, or obstructed breathing, and until sinus drainage has been secured.

RESULTS

In the diagnosis of malaria allergy by the therapeutic test and in prolonged follow-up treatment, we have obtained, with rare exceptions, uniformly satisfactory results. In the diagnosis and treatment of brucellosis in the hypersensitization phase, the results were strikingly good when antigens of intrinsic origin (brucella bacterin) were used in combination with group bacterins selected according to the organs manifesting the symptoms. The outstanding evidence in favor of employing allergens of intrinsic origin consists in the prompt and positive response in cases which had been under treatment for months and years with antigens of extrinsic origin. Many of these patients were so greatly improved symptomatically and in general health that we discontinued desensitization with extrinsic allergens (atmospheric atopens, etc.) and directed the patient to resume certain foods which had been formerly contributed to allergic reactions. By simple deduction we conclude that intrinsic infection is the basic and primary cause of hyperreactivity of the immune mechanism.

COMMENT

It will be noted that in the diagnosis of these atypical conditions we have made no mention of the agglutination test or the opsonocytophagic index. Until a few years ago these tests were relied on for diagnosis but the fallacy of these procedures is now recognized.

Doubt may arise as to whether the induration appearing under the skin at the site of injection is allergic in nature. The evidence that it is allergic is based upon the high incidence of hyperreaction following skin tests with tuberculin, etc., species specificity. Whether or not the employment of brucellosis antigen is specific in all cases in which definite response has been obtained can be questioned. Clinically the results would seem to be specific. In any case, the employment of brucellosis antigen as a non-specific protein is a reasonable procedure in view of the many instances in which complete relief from allergic symptoms can be obtained.

There is no question that the method of diagnosis and treatment outlined here lacks certain requirements to meet the standards of scientific accuracy, but certainly the field of allergy cannot be considered an accurate science in its present stage of development. We have reported clinical observations which we have found extremely helpful in the management of allergy, and it is hoped that the report will stimulate discussion along these lines that will result in improving the status of the large group of allergic individuals.

SUMMARY AND CONCLUSIONS

A large proportion of our patients coming to consultation for atypical conditions characterized by recurring symptoms have responded in a gratifying manner to desensitization treatment.

The high incidence of brucellosis as diagnosed by routine skin tests, and of malaria as confirmed by therapeutic tests, demonstrates that in a large majority of allergic patients the hypersensitive state has originated from the influence of these two highly reactivating organisms upon the immune mechanism, and that they are the

factors primarily responsible for the development of secondary or multiple hypersensitization (extrinsic allergy). We believe that failure to confirm the diagnosis of malaria or brucellosis by the usual laboratory procedures is due to the destruction of the causative organisms in the circulation by hyperreactivity of the immune organism in these atopic individuals.

That a definite relationship exists between intrinsic allergens (by-products of the action of the infective organism upon the defense mechanism) and extrinsic allergens (hay fever, asthma, etc.) would seem to be indicated from the satisfactory results obtained by desensitization treatment in our selected cases.

The words "cure" and "eradication" are not included in our concept. The objective is *control* of the hypersensitization.

It is our conviction that the method of diagnosis and treatment outlined here for malaria and brucellosis might well be applied in other persistent infections.

THE SEVERAL VARIETIES OF ACTINOMYCOSIS

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Actinomycosis may be thought of as a chronic disease characterized by draining sinuses and indurated tissues, occurring in the face and neck or in the abdomen or thorax, and diagnosable by sulfur granules. This definition does not go far enough, as I will demonstrate to your satisfaction. Moreover, draining sinuses may not be present; the disease may occur in the foot only; and sulfur granules may be entirely absent.

Actinomycosis is the most common of the deep fungus infections. And yet it stands apart from the other mycotic diseases because the organisms causing actinomycosis are more closely related to bacteria than are any of the other fungi.

It is my purpose to round out the concept of actinomycosis and to present data to aid in the diagnosis and treatment of this mycotic disease.

CAUSATIVE ORGANISMS

Fungi are plants lacking roots, stems and leaves. In addition, the fungi do not contain chlorophyl. These non-chlorophyl-containing plants are divided into the pseudomycetes or false fungi, and the eumycetes or true fungi. The pseudomycetes contain the group of schizomycetes which comprise bacteria and bacteria-like organisms. Here belong *Actinomyces* and *Nocardia,* the causative agents of actinomycosis. The eumycetes or true fungi are less like bacteria, being usually broader, often having more complicated structure, and often showing astonishing pleomorphism in varying environmental conditions. The organisms causing all of the fungus infections, such as blastomycosis, cryptococcosis or sporotrichosis, are among the eumycetes.

If we disregard this botanical grouping for a moment and group all the pathogenic fungi according to their form in human tissues, the fungi fall into three groups: those with filaments only, those with rounded bodies only, and those with filaments and rounded bodies. The organisms causing actinomycosis fall into the first group. They have filaments or, in other words, hyphae in tissues. Filaments alone are produced in cultures. Rounded bodies, or spores, are never produced in the growth of the causative agents of actinomycosis.

The causative organisms of actinomycosis are two, *Actinomyces bovis* and *Nocardia asteroides.* These organisms are practically identical, the term *Nocardia* being used because it had precedent—and precedent is important in botanical nomenclature as it is in courts of law. The term *Actinomyces asteroides* could be used more appropriately. Both *A. bovis* and *N. asteroides* have thin, branching filaments. Branching is *the* characteristic of the organisms. Without this we would call the organisms ordinary bacteria because the filaments are as

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thin as ordinary bacteria. It is usual to have conglomerations or colonies of the filaments in lesions and these conglomerations are called grains or granules. The sulfur granule is a grain or fungus colony, a conglomeration of branching filaments. But sometimes the filaments occur in lesions as separate branching hyphae, not as grains.

Actinomyces bovis is anaerobic while *Nocardia asteroides* is aerobic. In addition *N. asteroides* is sometimes acid-fast. *A. bovis* occurs in the buccal cavity, about teeth and in the tonsils; *N. asteroides* occurs in the soil and on vegetable material. Nocardia has often been designated streptothrix. Hence nocardiosis and streptothricosis are synonyms for actinomycosis caused by aerobic actinomycetes.

FORMS OF ACTINOMYCOSIS

The disease actinomycosis is named on the basis of its causative agent, the actinomycete. Actinomycosis, therefore, in a broad sense comprises any disease caused by agents of the type I have just described. The causative agent is the definitive factor, not the type or location of lesion, or the clinical or pathologic picture.

Fungus infection may be divided into the superficial and the deep. The superficial, exemplified by the dermatomycoses, may be saprophytic or pathogenic. The deep, exemplified by actinomycosis, may be localized or generalized.

One form of infection caused by an actinomycete is most superficial. This is erythrasma, a chronic fungus infection of the stratum corneum characterized by superficial lesions in the axillae and genitocrural regions, but occasionally involving other intertriginous areas. The lesions are light brown to reddish patches. The fungus demonstrated in scrapings appears as short delicate branching filaments, one micron or less in diameter, which are readily broken up into smaller bacillary or coccoid forms.

Examples of deep actinomycosis localized to portions of the body are infections of the skin and subcutaneous tissues, mycetomas, and actinomycosis of the abdomen and lungs. There is a recent report of an actinomycoma of the third ventricle.[1] Actinomycosis of the tongue is well known.[2] A recent case report describes actinomycosis of the forearm following a human bite.[3]

The commonest deep localized form of actinomycosis is that of the face and neck. The organisms, normal inhabitants of the buccal cavity, enter presumably by way of the gums around carious teeth or through the tonsils. Cervicofacial actinomycosis has a much better prognosis than the abdominal and thoracic forms. However, on occasion the infection may spread widely from the face and neck, as I have seen in a case at autopsy. In this case, the infection, starting in the neck, spread upward along the cervical spine and invaded the cranial cavity, producing an epidural abscess and a thickening of the skull and of the bony orbit. The bony thickening of the orbit was so great that unilateral exophthalmos developed. The infection extended downward to involve the intercostal tissues and pleurae at the apices of the thoracic cage.

Infection with aerobic actinomycetes (*Nocardia asteroides*) constitutes the commonest cause of mycetoma, the tumor-like mycotic swelling usually involving the foot. *Actinomyces bovis* is a less frequent cause. (In addition, mycetoma is caused by a variety of forms belonging to the eumycetes. Maduromycosis is used by some to designate this last mentioned group, and by some to be a synonym for mycetoma.)

In mycetoma the infection is frequently an osteomyelities as well as a soft tissue infection. Draining sinuses are characteristic. Pus or tissue sections usually show grains of *Nocardia asteroides* if the mycetoma is actinomycotic.

Actinomycosis of the lung may be a primary infection due to aspiration of organisms from the mouth (*A. bovis*) or from vegetation (*N. asteroides*). Recently there is a report of two cases of pulmonary and chest wall infection with acid-fast *Nocardia* in which excellent results were obtained with sulfonamides and iodides together with

1. Orr, T. G.: Actinomycoma of the Third Ventricle, Probably Primary, J. A. M. A. 127, 757 (March 31) 1945.

2. Cope, Z.: Actinomycosis. Oxford University Press, London, 1938.

3. Robinson, R. A.: Actinomycosis of the Subcutaneous Tissue of the Forearm Secondary to a Human Bite, J. A. M. A. 124, 1049 (April 8) 1944.

rest, surgery and vitamins.[4] The patients were apparently cured.

The abdominal form of actinomycosis usually begins in the appendix or large bowel, organisms from the mouth entering the mucosa. In a typical case a colored boy of 16 years had pain in his flank four months before he died. A fluctuant mass in the lumbar region was incised and was shown to contain the anaerobic *Actinomyces bovis*. At autopsy there was a retrocecal abscess cavity. In the wall of the cecum were mucosal and submucosal actinomycotic abscesses. The appendix was imbedded in scar and showed mucosal actinomycotic abscesses. It was concluded that the origin of the infection was either appendix or cecum. Grains or granules from the retrocecal abscess wall were abundant in the microscopic sections and showed peripheral clubs and surrounding neutrophils. These radiating clubs are like rays from a source of light. Hence the term ray fungus which means actinomycosis. Stained by the method of Gram the grain is seen to be composed of branching filaments. In this case the infection spread from the cecum or appendix by the portal blood stream to the liver, producing multiple honeycombed hepatic abscesses.

Actinomycosis may also be a generalized deep fungus infection, generalized as a result of dissemination by the blood stream. It is thus usually a pyemia with foci in lungs, kidneys or brain or elsewhere. The abdominal form may extend beyond the abdomen in this way. For example, in another case the primary lesion was in the large bowel, and abscesses were noted in the lung. The diaphragm and pleural cavity were not involved, so the spread was not directly transdiaphragmatic. In some cases, a spread from an abscess of the liver or from a subdiaphragmatic abscess leads to infection of the pleura and lung by penetration of the diaphragm.

Pyemias caused by *Nocardia asteroides* occur occasionally in which there are no grains in the lesions and the organism occurs as branching isolated filaments which must be demonstrated by culture or by staining sections of the edges of abscesses. Branching gram-positive organisms are present.[5]

CONCLUSION

From this presentation you will agree, I believe, that a too confined view of actinomycosis needs amplification. I wish to make the point that, in addition to the cervicofacial, abdominal and thoracic forms of actinomycosis, there are other important forms, such as mycetoma; that grains may be absent from lesions; that the actinomycetes may be aerobic as well as anaerobic; and that the actinomycetes are really higher bacteria.

The diagnosis of actinomycosis will be made by examination of pus or other material and by demonstrating either granules composed of branching filaments or branching filaments in the absence of granules. The anaerobic actinomycete will not be demonstrated by culture frequently since it is hard to grow and usually grown only from granules which have been isolated from pus. The aerobic actinomycete, however, may be cultured more readily, but it should preferably be seen on direct examination of pus or other material, in addition to being seen on culture, in order to know that the organism cultured came from the lesion and was not a contaminant.

The granules of actinomycosis must be distinguished from the granules of maduromycosis, which have spores, and from the granules sometimes found in staphylococcal pus, which are composed of gram-positive cocci.

The treatment of the deep forms of actinomycosis, especially the abdominal form, has in the past been discouraging to say the least. But it has recently been shown that both the sulfonamide drugs and penicillin are of value. These, in combination with iodides, thymol, surgery, rest and proper nutrition, and x-ray in some cases, offer more to patients with actinomycosis than has been available previously.

4. Benbow, E. P. Jr.; Smith D. T., and Grimson K. S.: Sulfonamide Therapy in Actinomycosis. Two Cases Caused by Aerobic Partially Acid-Fast Actinomyces, Am. Rev. Tuberc. 49, 391. 1944.

5. Conant, N. F.; Martin, D. S.; Smith, D. T.; Baker, R. D., and Callaway, J. L: Manual of Clinical Mycology. W. B. Saunders Company. Philadelphia and London, 1944.

SURGERY OF THE COLON: TRAUMATIC AND ELECTIVE

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Whenever surgery of the colon is discussed or contemplated, the question immediately arises as to what type of procedure should be employed. Should an exteriorization operation (colostomy) or a primary anastomosis with reestablishment of the continuity of the intestinal tract be performed? In treating lesions of the small intestine, the latter is usually employed. The small intestine has a redundant mesentery, is entirely covered with peritoneum, has a thick wall, has a rich blood supply, and has a less virulent bacterial content than has the large intestine. Portions of the ascending colon, both flexures, and parts of the descending colon and rectosigmoid lie retroperitoneally and do not have a well defined peritoneal covering of their entire circumference—a very important factor in securing a successful anastomosis. The blood supply to the colon, though of course adequate under normal conditions, is not abundant. The content of the colon is high in bacterial count, and this factor often plays a part in late perforations along the suture line. These anatomic and physiologic differences allow the small intestine on the one hand to lend itself readily to primary anastomosis, and on the other hand make the same procedure quite hazardous, under certain conditions, when applied to the colon. Some very influential clinics prefer to exteriorize all colon resections. However, each case should be studied individually and prepared with a view towards doing, if possible, a primary anastomosis. The reason for preferring a primary anastomosis is that there is a tremendous difference between a successfully functioning primary anastomosis and a colostomy which will have to be closed at a later date.

Under certain circumstances an exteriorization operation is not only the procedure of choice but should be insisted upon. Traumatic injuries and diseases causing obstruction demand surgery of this type. To perform an anastomosis in a colon filled with feces, a condition often encountered in operating for traumatic injuries, is indeed hazardous. Also, to attempt such a procedure in a distended, fluid and gas filled, obstructed colon is unwise.

In a paper recently published by the author entitled, "Colon Surgery in the Forward Battle Area,"[1] based on a wide experience in treating abdominal war wounds in the Mediterranean Theatre of Operations, I emphasized the necessity of exteriorizing all traumatic colon wounds. Exteriorization was advocated by means of two types of colostomy: the tangential or simple, no spur, loop colostomy and the sutured, long double-barreled spur colostomy. The colostomies most applicable in various degrees and locations of trauma were fully discussed. For example, in large tears or transections of the colon, or in obstruction from a tumor, a double-barreled, sutured, spur colostomy should be constructed. Such a colostomy has a spur ready for crushing with a clamp at an early date, thereby reestablishing the continuity of the intestinal tract. In cases of ante-mesenteric perforations, or in emergency operations where decompression is necessary, a simple, no-spur, loop colostomy can be quickly made. Such a colostomy is preferably closed later by freeing the gut from the abdominal wall, closing the opening, and replacing the segment in the free peritoneal cavity.

The prime factor of significance in determining whether exteriorization or primary anastomosis should be used is one of preparation of the intestinal tract. When emergency demands immediate surgical intervention, there is no time for preparation. In an elective case, when time is available for preparing for surgery, a primary anastomosis and not a colostomy is the procedure of choice. The properly prepared colon is one which has first been mechanically cleansed with laxatives and enemas for two or three days, and then followed by a course of succinylsulfathiozole or sul-

Read before the Association in annual session, Birmingham, April 17, 1946.

1. Mason, J. M. III: Surgery of the Colon in the Forward Battle Area; Surgery 18, 534 (Nov.) '45.

fathalidine.[2, 3, 4] Colons were, of course, being adequately prepared and sucessfully anastomosed long before the advent of any of the sulfa drugs. I do not wish to imply that with the sulfa drugs has come a revolution in the field of colon surgery. Such is certainly not true. Also, one should not have a false sense of sucurity in using them. Adherence to sound surgical principles and attention to details of technic are essential. These two drugs are, however, useful and invaluable adjuncts in surgery of the large intestine, in that they markedly reduce the virulence of organisms in the colon. When one of these drugs is used in conjunction with careful surgery, the patient is made much more comfortable, runs a much smoother postoperative course, and the morbidity and mortality are lessened.

The author prefers, in elective, non-obstructed, prepared cases, to use fine interrupted sutures in an end-to-end, all silk, double row, aseptic anastomosis over Stone clamps.

And so, under certain conditions, the exteriorization operations will always have a definite place in colon surgery. Under other conditions more and more elective cases, when properly prepared, can be treated by resection and primary anastomosis, thereby saving the patient prolonged drainage, secondary closure, and tedious convalescence.

Chemotherapy of Malaria—In any consideration of the treatment of malaria it is necessary to take into account the different morphological stages of the malaria parasite which may exist in man, their relationship to the production of symptoms, and the extent to which these stages may be influenced by drugs. No known drug acts with equal effectiveness upon all these stages. Drugs which are highly effective upon one stage of the parasite may be completely ineffective upon other stages. Unfortunately, some of the stages which are resistant to therapy play an important role in symptomatology. —*Packer, J., Tennessee M. A., June* '46

2. Poth, E. J., et al.: An Experimental Evaluation of Sulfasuxidine and Sulfathalidine in Surgery of the Colon, Surgery 18, 529 (Nov.) '45.

3. Poth, E. J., et al.: Bacteriostatic Properties of Sulfanilamide and Some of its Derivatives: Succinylsulfathiozole, A New Chemotherapeutic Agent Locally Active in the Gastro-Intestinal Tract, Arch. Surg. 44, 187 (Feb.) '42.

4. Poth, E. J., and Knotts, F. L.: Clinical Use of Succinylsulfathiozole, Arch. Surg. 44, 208 (Feb.) 42.

Fiberglas Packs in Pelvic Surgery—It is generally conceded by surgeons that the immediate and remote mechanisms in the production of postoperative adhesions are due to physical factors.

The almost universal use of hot, wet, absorbent surgical gauze material as laparotomy packs or pads lays the foundation for consequent postoperative complications. The rough, abrasive characteristics of this type of material are well known to all operating surgeons.

Not infrequently, in prolonged procedures, the surgeon must actually strip the packing material from the intestines which reveal a red, raw and irritated surface upon which the imprint of the meshwork of the cotton gauze is visible. Coupled with this traumatic, mechanical peritonitis there is the associated factor of thermal injury to the viscera produced by the heat of the moist, wet packs.

With these objections to the presently available material in mind, we have recently adopted and successfully used fiberglas cloth packs in pelvic surgery. These packs are made from fiberglas cloth in double thicknesses approximately 9-10 inches in width and approximately 38-40 inches in length. The entire circumference of the pack, with the frayed edges turned in, is sewn on a machine with fine silk or cotton thread. Vertical and horizontal reinforcements of the same material are used at intervals of two to four inches. The completed packs may be autoclaved and used wet or dry in the actual surgical procedure.

Care should be taken in the process of reclamation for subsequent use. The packs may be easily cleansed by repeated immersions in clear water or by the simple process of allowing tap water to flow over their surfaces for a short time. Hand rubbing the material during the procedure will result in tears of the individual fibers and holes in the material. For the same reason they should not be wrung out in drying, but should be hung on or over a drying rack.

Fiberglas is an inorganic, non-toxic, non-allergenic, non-sensitizing and chemically stable substance which produces no harmful effect upon human tissue. It is a pliable substance, possessing great tensile strength and a high degree of dimensional stability. Fiberglas has a marked resistance to high temperatures, as well as to acids (except hydrofluoric acid), steam and corrosive fumes.

Fiberglas is non-hygroscopic; the material absorbs but does not absorb moisture. Adherence or trauma to the intestines is impossible due to physical characteristics of the fiberglas cloth. When used dry and at room temperature the thermal factor of trauma is eliminated.

We believe that the adoption of fiberglas cloth packs in all types of surgery requiring packing or walling off of the intestines or adjacent viscera will materially decrease the incidence of postoperative adhesions.—*McMahon and Darby, New Orleans M. & S. J., June* '46

Urinary Tract Infections—It is universally recognized that urinary stasis definitely encourages the occurence or persistence of urinary infection Promotion of drainage in a suitable manner therefore is a logical requirement in control of such infections.

The presence and degree of obstruction must be evaluated. Each case must be judged and handled individually, but brief mention of some of the methods is timely.

Meatotomy is a simple procedure employed too seldom. We have observed frequent instances in which a stubbornly resistant urethritis or prostatitis of specific or non-specific origin cleared up promptly following adequate meatotomy.

Judicious urethral dilatation with sounds and bougies is practically a tradition. It may be used selectively to promote drainage from urethral glands, the prostate, and seminal vesicles. Legitimate increase in the caliber of urethral stricture also enhances expulsion of urine from the bladder and reduces adverse effect on the prostate. Rarely now do urethral strictures require internal or external urethrotomy.

Drainage of the urinary bladder pending the surgical correction of vesical neck obstructive lesions is ordinarily secured either by indwelling urethral catheter or suprapubic cystostomy. We most frequently employ Foley type retention catheters of small diameter (F 16 to 18). They are better tolerated during introduction, sojourn, and removal than other types. In some instances it is necessary to hold other types of catheters in place with strips of adhesive tape. Our cystostomies are performed by the trocar and canula technic and the catheter which is threaded through the canula is secured by loops of silk through the skin until it can be replaced by a Foley catheter. Interval catheterization is advocated by some. Indwelling catheters draining continuously through a closed system have proved more generally satisfactory in our hands. Aseptic principles must be observed and the catheter changed weekly if drainage is prolonged.

Postoperative urinary retention may provide a nucleus for infection. We have had no success yet with parasympathetic stimulating drugs. Careful catheterization still seems to be the treatment of choice. One must observe strict asepsis and avoid trauma of over-distention or rough instrumentation. Following extensive rectal or pelvic surgical procedures, the use of a small indwelling Foley retention catheter attached to a closed irrigation system for a variable period of time has become a routine.

Drainage of the ureters and kidney pelves is most commonly accomplished via ureteral catheters. Periodic dilatation sometimes will suffice. In most instances when their retention is necessary or desirable our practice is to leave them in place for seventy-two hours and replace them later if required—*Hooks, Texas State J. Med., May* '46.

Vitamins of the B Complex—There are numerous pathologic states which are important predisposing and precipitating causes of deficiency disease. The clinician should be aware of the possibilities and guard against the development of deficiency, or institute therapy, whenever symptoms and signs appear which suggest an inadequate suply of nutrients. The common etiologic factors are conditions in which metabolism is speeded up and diseases associated with poor absorption, improper utilization or distribution, or increased excretion of essential chemical materials. Specifically, the need for vitamins of the B complex appears to be increased during periods of rapid growth, in pregnacy and lactation, in hyperthyroidism and in infections, especially those of long duration accompanied by fever. In our experience at Charity Hospital in New Orleans, the infectious diseases most commonly associated with signs of deficiency of the B vitamins are tuberculosis and rheumatic fever. There is evidence that the incidence of these infections is increased in areas where vitamin B complex deficiency is prevalent. In hyperthyroidism experiments conducted both in animals and man indicate that the administration of large amounts of the B group of vitamins, in the form of yeast or liver extract, will promote gain in weight and improvement in general physical status in spite of continuance of the hypermetabolic state.

Poor absorption of the B vitamins may occur in diarrheal diseases, in any lesion of the gastrointestinal tract associated with inflammation and edema, after short circuiting operations, following prolonged periods of vomiting from any cause, and in achlorhydria. The use of absorbents and alkalis has been shown to effect absorption of some of the B vitamins. Diarrhea interferes with absorption not only by increasing motility but also by decreasing vitamin synthesis. In addition, noninflammatory degenerative lesions in the small intestine may occur which further impair obsorption.

In congestive heart failure vitamin B complex deficiency is a frequent finding due to the combined influence of anorexia, poor absorption, and poor distribution and utilization of nutrients as a result of the failing circulation. Improper utilization of the B vitamins may occur in liver disease. In cirrhosis, manifestations of deficiency of these factors is almost universal. The same is true of chronic alcoholism with which cirrhosis is often associated. Alcoholic gastritis and the high percentage of calories obtained from non-vitamin sources are contributory to this deficiency. Right-side heart failure and peripheral neuritis in chronic alcoholism usually respond to the administration of thiamine.

An increase in the excretion of some of the B vitamins may occur as a result of polyuria. This has been demonstrated following the administration of diuretic drugs and may occur in diabetes mellitus and diabetes insipidus. Postoperatively, the use of glucose in parenteral feeding may precipitate vitamin B complex deficiency if continued for long periods of time.—*Goldsmith, South. M. J., June* '46.

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CHRONIC BRUCELLOSIS

"Pasteurization of every drop of milk produced today would effectively reduce to the minimum tomorrow's new cases of brucellosis in all but a few occupations concerned with handling of infected animals. However, if such a forward step could be taken to protect the general population now, it would scarcely affect thousands of persons who drank raw milk several years ago. Eradication of infection in dairy herds to prevent new cases presents many difficulties. The diagnosis and treatment of thousands of old chronic cases presents many more problems. Of course pasteurization is not yet universal. Travel between the states has increased since 1941. Early in the mobilization after Pearl Harbor certain training units in the field were obliged to purchase food for mess, including raw milk, wherever it could be found. Officers and men could thus easily have contracted brucellosis while in service. Then and now they are still unprotected from possible exposure while on furlough.

"Actually the dairy industry is hard at work to eliminate brucellosis in milk producing animals, even while all such milk products are requisitioned by a wartime economy. . .

"Meanwhile members of the profession everywhere, both civilian and military, must remain alert to an infection, especially of the milder chronic type whose beginning is so often masked or insidious. Repeated attention has been called to the appearance in this country of the more dramatic acute febrile forms of infection . . . The diagnosis in such a protean disease must at any time be considered by the internist, gastroenterologist, orthopedist, neuropsychiatrist or general practitioner."

The above are the opening sentences of the recently published inquiry by Benning[1] into this disease, the diagnosis of which is so often missed. The author goes on to tell us that "the prevalence by survey of latent, subclinical forms of brucellosis is astonishingly high. Reasonable doubt that the health problem so represented is indeed serious might be entertained if the efficacy of tests used in such a survey could be questioned or if such figures indicated merely passive immunity. But in truth a most widely disseminated, highly invasive and extremely tenacious organism is concerned. Therefore a mammoth reservoir of potential danger to national health and efficiency is at hand."

The California investigator goes on to tell us that "the intradermal skin test is the most reliable means of confirming the clinical diagnosis of chronic brucellosis." He cites reports of other observers who found the incidence among school children by skin test to vary from 18 per cent among those living on farms to 1 or 2 per cent among those in cities. Benning performed the skin test on 1,065 clinic and hospital patients, 13.2 per cent of whom showed positive reactions.

The author tells us that "as yet there is not available for human use a vaccine whose toxicity is decreased and whose antigenic qualities are unmodified or enhanced. The injection of billions of heat killed cells (bacterins) has nothing to commend it in theory or practice." But he also informs us he treated some of his patients with injections of brucellin, a culture filtrate without bacterial cells. Of 78 patients

1. Benning, Henry M.: Chronic Brucellosis: Success of Treatment With Brucellin, J. A. M. A. 130: 320 (Feb. 9) 1946.

so treated 70 showed varying degrees of improvement.

Benning has done well in calling our attention to the fact that "brucellosis is one of the most prevalent of modern diseases." And he is also right in stressing the fact that a great many cases are of the latent, relatively light or subclinical types. Very probably it is in these milder forms that the greatest percentage of diagnostic errors occurs.

It is not too much to hope that on some distant day all milk will be pasteurized. But, until that day arrives, it behooves all practicing physicians to be far more conscious of brucellosis than they are at this time.

MAJOR CALDWELL CITED

Major Samuel W. Caldwell, Medical Corps, United States Army, has been awarded the Bronze Star Medal for meritorious service in connection with military operations against an enemy of the United States in Germany and France from 17 September 1944 to 29 January 1945. Major Caldwell supervised the installation, operation, supply and evacuation of regimental and battalion aid stations. In addition, he coordinated the supply and evacuation of French troops in his sector of France, procuring for them much needed supplies. When the division was committed in Germany, Major Caldwell, in addition to the foregoing, aided in treating the wounded wherever he was most needed. Under the efficient and tireless supervision of Major Caldwell, early treatment and rapid evacuation of the wounded prevented many deaths and reflected high credit upon himself and the Medical Corps. Major Caldwell is now in practice at Huntsville.

A LETTER FROM THE AUXILIARY

To the Physicians of Alabama:

Throughout the State and Nation our physicians have many problems. Chief among these are threatening developments in the field of medical economics and socialized medicine. The struggle to retain that which is good and to avoid that which is bad requires the united efforts of all medical societies and allied organizations.

The Woman's Auxiliary can and will be of material help, but our influence and assistance to you depends in great measure upon an enlarged membership and the organization of new Auxiliaries throughout the counties of Alabama.

Presidents of County Medical Societies and their memberships can materially assist their wives and our members-at-large in the organization of Woman's Auxiliaries. We ask your cooperation and support. We want "for every County Medical Society, a Woman's Auxiliary." The wife of any member of the State Medical Association may become a member-at-large by sending one dollar and making application to Mrs. J. R. Chandler, State Treasurer, 830 South 14th Street, Bessemer, Alabama.

We can help the medical profession in many ways. That is our job. I know you will give us every assistance and we call upon you individually to do so.

Sincerely,
Mrs. George A. Denison,
President.
1624 Bush Boulevard
Birmingham, Alabama

RESOLUTIONS

HOUSTON COUNTY MEDICAL SOCIETY

TOUCHING THE LIFE AND DEATH OF DR. L. L. HILL OF MONTGOMERY, ALABAMA

Whereas, Luther Leonidas Hill, M. D., LL.D., F. A. C. S., who was born at Montgomery, Alabama, January 22, 1862, departed from this life in the city of his birth April 4, 1946, at 84 years of age; and

Whereas, Dr. Hill achieved world renown in the international literature as a master surgeon; and

Whereas, He pioneered in surgery of the heart, doing the first successful case of heart suturing in America where the cavity of the heart had been entered; and

Whereas, This first successful operation on the heart of the boy thirteen years of age and other successful operations on the heart were fully authenticated and accredited in all of the leading medical journals and many textbooks on surgery, both in the United States and abroad; and

Whereas, Dr. Hill's skill and fame were chronicled in the leading textbooks on surgery during the years of his professional activity, such as "Operative Surgery" by Professor Jacobson of Guy's Hospital in London; Professor Bryant's "Operative Surgery"; "Keen's Surgery" in a special article written by Professor Matas; Professor Brewer's textbook on surgery, second edition; sixth edition of "Modern Surgery" by Professor DaCosta, of Jefferson Medical College; and John B. Murphy, of Chicago, in "General Surgery," to mention a few; and

Whereas, In 1897, while president of the Alabama State Medical Association, Dr. Hill originated the Jerome Cochran Lecture, and in 1913 he was chosen to deliver this lecture; therefore be it

Resolved, That in the death of Dr. L. L. Hill the world has lost one of its greatest surgeons, organized medicine one of its ablest masters, and the city of Montgomery one of its most distinguished citizens; and be it further

Resolved, That a copy of these memorials to Dr. Hill be recorded in the minutes of the Houston County Medical Society and forwarded for publication in the Alabama Medical Journal; and be it further

Resolved, That a copy of these testimonials be forwarded to the bereaved companion of Dr. Hill, who became his wife on July 12, 1888, and who has shared the joys and sorrows and reputation of this preeminent man for more than half a century.

Paul Flowers, M. D.
M. S. Davie, M. D., Chairman
Committee

June 7, 1946

MEDICAL COLLEGE OF ALABAMA NEWS

NEUROPSYCHIATRIC INSTITUTE CREATED

A neuropsychiatric institute has been created at the Medical College of Alabama and will be located in the school's teaching hospital, the Jefferson-Hillman, which will house on one floor the newly formed Department of Neurosurgery, Neurology and Psychiatry, and all patients of the institute. Diagnostic, therapeutic, research and teaching services of the institute will be available to the profession at large.

This neuropsychiatric institute has been made possible by the Walter Haynes Foundation which will subsidize study and research in addition to the activities of the institute.

The staff of the institute is the same as that of the newly created Department of Neurosurgery, Neurology and Psychiatry, which is as follows: Walter G. Haynes, M. D., Professor and Chairman (Neurosurgery), Director of the Institute; Frank A. Kay, M. D., Associate Professor (Psychiatry); Wilmot S. Littlejohn, M. D., Associate Professor (Neurology); Donald Ramsdell, Ph. D., Associate Professor (Psychology); Garber Galbraith, M. D., Associate Professor (Neurosurgery); Samuel C. Little, M. D., Assistant Professor (Neurology); William B. Patton, M. D., Assistant Professor (Neurosurgery); Benjamin F. Morton, M. D., Instructor (Psychiatry); Stanley E. Graham, M. D., Assistant; and William P. Tice, M. D., Assistant.

* * *

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STATE DEPARTMENT OF HEALTH

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H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

MARCH 1946

Examinations for diphtheria bacilli and Vincent's	440
Agglutination tests (typhoid, Brill's, undulant fever)	810
Typhoid cultures (blood, feces and urine)	787
Examinations for malaria	754
Examinations for intestinal parasites	2,033
Serologic tests for syphilis (blood and spinal fluid)	32,541
Darkfield examinations	45
Examinations for gonococci	4,219
Examinations for tubercle bacilli	2,228
Examinations for meningococcus	2
Examinations for Negri bodies (microscopic)	209
Water examinations	1,195
Milk examinations	2,344
Miscellaneous	556
Total	48,163

* * *

APRIL 1946

Examinations for diphtheria bacilli and Vincent's	423
Agglutination tests (typhoid, Brill's and undulant fever)	913
Typhoid cultures (blood, feces and urine)	904
Examinations for malaria	888
Examinations for intestinal parasites	2,198
Serologic tests for syphilis (blood and spinal fluid)	31,755
Darkfield examinations	38
Examinations for gonococci	4,492
Examinations for tubercle bacilli	2,131
Examinations for meningococcus	7
Examinations for Negri bodies (microscopic)	186
Water examinations	1,170
Milk examinations	2,434
Miscellaneous	565
Total	48,114

Simulated Silicosis—Some inorganic dusts produce alterations in the lungs which are represented by a mild accentuation of the linear markings in the x-ray. Included in this group are dusts from such materials as limestone, marble, talc, chalk, calcined magnesium for insulation, furnace linings, carbon and cement. Since they are relatively inert and non-productive of symptoms, their presence is only detectable by x-ray and the shadows observed may resemble the exaggerated lineal pattern of presilicotic stages.—*Hamlin, Indust. Med., June* '46.

BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

CURRENT MORBIDITY STATISTICS

1946

	Feb.	Mar.	E. E.* Mar.
Typhoid	3	7	6
Typhus	20	24	11
Malaria	149	70	81
Smallpox	1	1	2
Measles	486	828	1026
Scarlet fever	62	154	81
Whooping cough	62	60	133
Diphtheria	33	28	38
Influenza	2151	939	1275
Mumps	191	214	259
Poliomyelitis	2	2	2
Encephalitis	1	4	1
Chickenpox	99	161	180
Tetanus	2	2	3
Tuberculosis	241	335	216
Pellagra	2	6	12
Meningitis	13	21	25
Pneumonia	525	628	558
Syphilis	1092	1146	1655
Chancroid	8	18	10
Gonorrhea	973	1283	401
Trachoma	0	0	0
Tularemia	1	6	2
Undulant fever	6	14	3
Dengue	0	0	0
Amebic dysentery	2	1	0
Cancer	227	203	0
Rabies—Human cases	0	0	0
Positive animal heads	79	109	....

* * *

	Mar.	Apr.	E. E.* Apr.
Typhoid	7	3	6
Typhus	24	22	14
Malaria	70	91	102
Smallpox	1	0	1
Measles	828	834	788
Scarlet fever	154	118	54
Whooping cough	60	54	205
Diphtheria	28	19	34
Influenza	939	77	492
Mumps	214	128	282
Poliomyelitis	2	1	2
Encephalitis	4	1	2
Chickenpox	161	151	182
Tetanus	2	5	5
Tuberculosis	335	287	264
Pellagra	6	2	10
Meningitis	21	16	18
Pneumonia	628	308	502
Syphilis	1146	1090	1585
Chancroid	18	19	8
Gonorrhea	1283	1052	390
Trachoma	0	0	0
Tularemia	6	0	1
Undulant fever	14	7	3
Dengue	0	0	0
Amebic dysentery	1	0	0
Cancer	203	210	0
Rabies—Human cases	0	0	0
Positive animal heads	109	91	....

As reported by physicians and including deaths not reported as cases.

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

BUREAU OF SANITATION

T. H. Milford, M. S. in S. E., Director

THE DDT TYPHUS DUSTING PROGRAM

One of the major scientific achievements of World War II was the discovery of DDT as a means of controlling insect pests. The spread of insect-borne diseases was checked in many instances where this chemical was employed. It is a well known fact that very small quantities of this chemical are effective against a wide variety of insect pests. The striking feature of the DDT spray and dust is its power to kill insects which come in contact with it months after it is applied.

Experiments by representatives of the U. S. Public Health Service Typhus Control Unit in San Antonio, Texas, indicated that DDT might prove effective as a control agent used as an eradication measure against rat fleas, which transmit typhus, rather than by destroying the rats which harbor the vectors. Experiments indicated that dusting 10% DDT powder in rat runs, harborages, burrows, possible nesting places, and other locations where rats travel, provided an effective reduction in the degree of infestation of rat fleas. Other experiments conducted at various places showed similar results. Based upon these results and other factors, the U. S. Public Health Service officials decided to try to reduce or eliminate typhus through a DDT dusting program in the endemic typhus areas.

The first step in organizing the new program was to locate the areas in which typhus control work was most needed. After considering epidemiologic data which had been accumulated the Medical Division of the Malaria Control in War Areas Office approved 140 counties in nine states as eligible to participate in the program within financial and manpower ceiling limits. Seventeen Alabama counties met the criteria and were pre-approved for operations to be directed by the State Health Officer. For the DDT dusting and rat stoppage operations, Alabama was allocated approximately $90,000 and a manpower ceiling of fifty-one men.

DDT dusting aims at the control of rodent ectoparasites, particularly *Xenopsylla cheopis,* the Indian rat flea. This flea is prevalent throughout the South, and is most numerous during the summer months.

Cases of murine typhus fever among humans are also more prevalent during the summer and fall months. Generally, it appears that, when practical, DDT dusting operations should be conducted particularly during the period from May through October. This is especially true in the rural areas since it is at this time that barns, cribs, haymows and other grain containers in which rats live or travel are empty or nearly so.

Rats live in warm buildings, such as food establishments, and may have numerous ectoparasites the year-round. Outbreaks of winter-time typhus have been traced to such places. There is considerable winter-time typhus in the southern section of the State; therefore, there are circumstances where year-round dusting operations and other typhus measures are justified.

Before or during dusting operations, buildings and premises are thoroughly inspected to locate rat signs. These are usually found at food and water sources, resting places and runways.

Ten per cent DDT dust is placed in active rat runs and in small patches around food, water, harboring places, entrances, and in burrows where rats are traveling. As the rats move around in these areas, usually enough DDT adheres to their coats to be toxic to the fleas.

It is also important to dust such places as dog houses and chicken coops because rat fleas are often found on dogs and in chicken houses.

Caution must be exercised in the use of DDT to prevent its being placed on uncovered or unprotected foods.

Several types of dusters are used for applying DDT dust. They include two types of hand shakers: a small one with an extension and attached for dusting out-of-the-way runs and rafters, and a larger type for use in such places as exposed runs along walls. Another is the plunger pump, a hand variety which dusts places hard to reach otherwise. The foot pump is used in dusting enclosed harborages and burrows. For broadcasting dust over large areas, a rotary duster is used.

Evaluating procedures for use on the DDT dusting program have been designed by the

MCWA Entomology Division. Live rats are collected from the dusted and undusted premises, and the degree of of infestation with fleas and other parasites determined. Prevalence of typhus in rats is determined by a complement fixation test. Blood taken from the rats is centrifuged and the serum sent to the laboratories and tested. In most instances the rats from which both the bloods and ectoparasites are obtained are taken on a random sampling basis.

DDT dusting projects are operating in nine counties. In some instances poisoning is carried on by the same crew. Various factors influenced the selection of the areas where projects are operating. Probably the two outstanding ones were the number of cases of typhus and local participation and interest. Lack of money and manpower, of course, is the reason the program is not extended to all seventeen of the pre-approved counties.

Though no definite conclusions have been drawn as to the effectiveness of the program with reference to lowering typhus rates, verbal reports from other states indicate that good results can be expected.

Health Centers—The health center may indeed be a valuable service station for the physicians of all types who practice medicine in the neighborhood. Its icebox should be well stocked with vaccine virus, toxoid, typhoid vaccine and other biologics, and the shelves in its cupbord or its display racks should be crowded with supplies of birth and death certificates and communicable disease report cards or up-to-date and helpful leaflet publications on the common communicable diseases, and on keep-well topics such as nutrition, breast feeding, cancer, and maternal and child hygiene that are available for wide distribution and teaching. There should be a receiving station where physicians may deposit throat cultures, sputum samples, blood specimens, or other similar items for transportation once or twice a day to the central laboratory of the local health department. The district health officer would be available for consultation service in the diagnosis of obscure cases that might be communicable disease, on the call of any member of the medical profession, and a speedy and efficient neighborhood service would thus be made available for the diagnosis, treatment, and prevention of sickness in a way that perhaps can be best described as "putting out the fire before the house burns down."—*Williams, Am. J. Pub. Health, June* '46.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED BIRTHS, STILLBIRTHS, DEATHS FROM CERTAIN IMPORTANT CAUSES AND RATES*—

FEBRUARY 1946, 1945, 1944

Births, Stillbirths, and Causes of Death	Number of Deaths Registered—February 1946			Rate (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births, exclusive of stillbirths	5304	**	**	23.9	27.5	23.4
Stillbirths	143	**	**	26.3	42.9	28.2
Deaths, exclusive of stillbirths	2065	1148	917	9.3	9.4	9.2
Infant deaths:						
Under one year	245	119	126	46.2	45.0	50.5
Under one month	144	74	70	27.1	24.7	29.3
Typhoid and paratyphoid 1, 2					0.4	0.4
Epidemic cerebrospinal meningitis 6	5	3	2	2.3	2.7	4.3
Scarlet fever 8						
Whooping cough 9	2	1	1	0.9	1.1	3.4
Diphtheria 10					0.9	1.3
Tuberculosis, all forms 13-22	91	37	54	41.0	36.0	46.7
Malaria 28	1	1		0.5	0.9	
Syphilis 30	26	7	19	11.7	14.9	15.8
Influenza 33	87	47	40	39.2	22.1	43.2
Measles 35	2		2	0.9		6.0
Poliomyelitis 36						
Encephalitis 37					0.9	
Typhus fever 39					0.9	1.3
Cancer, all forms 45-55	172	122	50	77.5	62.2	57.8
Diabetes mellitus 61	22	13	9	9.9	15.3	11.6
Pellagra 69	3	2	1	1.4	3.2	1.3
Alcoholism 77	1	1		0.5	0.4	1.7
Intracranial lesions 83	218	118	100	98.2	81.5	95.5
Diseases of the heart 90-95	407	263	144	183.3	201.4	166.6
Diseases of the arteries 96-99	22	16	6	9.9	12.6	10.7
Bronchitis 106	2	2		0.9	3.2	2.1
Pneumonia, all forms 107-109	129	63	66	58.1	76.1	67.7
Diarrhea and enteritis (under 2) 119	6	2	4	2.7	3.6	3.8
Diarrhea and enteritis (2 and over) 120	2	2		0.9	1.4	2.1
Appendicitis 121	6	3	3	2.7	3.6	3.8
Hernia, intestinal obstruction 122	20	11	9	9.0	5.0	7.3
Cirrhosis of the liver 124	9	6	3	4.1	2.7	4.3
Nephritis, all forms 130-132	166	83	83	74.8	82.0	61.2
Diseases of the puerperal state 140-150	12	4	8	22.0	29.7	40.9
Puerperal septicemia 140, 142a, 147	3		3	5.5	11.0	14.2
Suicide 163-164	13	11	2	5.9	3.2	7.3
Homicide 165-168	29	6	23	13.1	10.4	8.6
Accidental deaths (exclusive of motor vehicle) 169, 171-195	96	56	40	43.2	54.5	44.1
Motor vehicle 170	51	38	13	23.0	12.6	11.1
All other known causes	285	176	109	128.4	135.1	134.5
Ill-defined and unknown causes 199-200	180	54	126	81.1	85.6	80.5

*Birth and death rates per 1,000 population; infant death rate per 1,000 live births; stillbirths per 1,000 total births (inclusive of stillbirths); from specific causes per 100,000 population; from puerperal causes per 10,000 total births.

**Not available.

BOOK ABSTRACTS AND REVIEWS

Suggestion and Hypnosis Made Practical. How to Get What You Want. By Samuel Kahn, M. D., Ph. D. Author of Psychological and Neurological Definitions, Mentality and Homosexuality, How To Learn and Advance, etc.; formerly Clinical Professor of Neurology and Psychiatry at Georgetown and George Washington Universities; Chief Psychiatrist to the U. S. Army Induction Board for the States of New Jersey and Delaware and faculty member of New York and Long Island Universities. Cloth. Price, $3.00. Pp. 200. Boston: Meador Publishing Company, 1945.

"Suggestion and Hypnosis Made Practical" is written in an elementary style for layman as well as for physicians. Its very title would make many dubious of its content; however, the subject matter is presented modestly and with due respect for scientific accuracy. Extravagant claims are lacking. The history of hypnosis and suggestion is given briefly but amply. The value of wise and thoughtful suggestion is emphasized and its application is made practical. There are many thought provoking statements and paragraphs that can be useful to physicians, teachers, parents, and anyone dealing with other persons.

Rumor and propaganda are discussed in a meaningful manner. A chapter on questions and answers enables one to summarize the information easily.

In short, it is a readable little book which, in spite of its questionable title, will do little, if any, harm and give many curious people a bit of helpful information.

Frank A. Kay, M. D.

Synopsis of Pathology. By W. A. D. Anderson, M. A., M. D., F. A. C. P. Second edition. Cloth. Price, $6.50. Pp. 742, wtih 327 text illustrations and 15 color plates. St. Louis: C. V. Mosby Company, 1946.

The new second edition of Dr. Anderson's *Synopsis of Pathology* gives the medical profession and the medical student a concise and accurate presentation of pathology. The book is perhaps better adapted to the medical profession than to the medical student who is being introduced to pathology since the book is primarily factual and does not offer explanations and reasons. This is, of course, necessary in order to keep the book within the confines of a synopsis. Nevertheless, it would serve satisfactorily as a medical student's text provided the instructional staff amplified the subject by explanations and illustrative materials. Actually one wonders whether it would not be desirable to put such a book in the hands of a medical student so that he would not be overburdened with reading and would have time to observe gross and microscopic materials and to read a few well chosen references.

In this connection, this reviewer has calculated that Dr. Boyd's *Textbook of Pathology* contains twice as many words as Dr. Anderson's *Synopsis of Pathology* and that Dr. Moore's *Textbook of Pathology* contains from three to four times as many.

The book is readable and there is a genuine pleasure in having the facts stated so concisely, devoid of controversial matter and elaboration. There is not the charm of presentation found in Dr. Boyd's text, but charm undoubtedly requires more wordage. The author is to be complimented on the accuracy of the data. In a perusal of a fair number of topics, the reviewer has found only one error. The Synopsis gives the impression that midzonal necrosis occurs at times in the liver in cases of fatal burns. The reviewer's own investigative work indicates that hepatic necrosis is not at all characteristic of burns and that what was interpretated as such was a result of the effect of tannic acid used in the treatment of burns.

The Synopsis can be recommended to the practicing physician for use as a brief reference book. Most of the illustrations are satisfactory. A few are excellent, but a few are substandard in regard to the original photograph or the reproduction.

The virtues of the book depend in part on the training and background of the author, which have been varied. Dr. Anderson's medical education and early training in pathology were at the University of Toronto in Canada. He had further training and experience in pathology at Duke Medical School. Later, he was on the teaching staff of the Pathology Department at the University of Tennessee Medical School and still later at St. Louis University Medical School. He has recently become Professor of Pathology and Bacteriology at Marquette University School of Medicine in Milwaukee, Wisconsin. He had postgraduate work at the British Postgraduate Medical School and also participated in one of the field trips in tropical medicine which so many medical school teachers in the United States had the opportunity to take during the war period. This last experience explains why the section on tropical diseases and parasitology is good.

Roger D. Baker, M. D.

Poison ivy affects only those persons who have been sensitized to it by previous exposures, according to Lester Hollander, M. D., of Pittsburgh, Pa.

Writing in the current issue of *Hygeia,* health magazine of the American Medical Association, Dr. Hollander, who has been a practicing dermatologist since 1918, and medical director of the Pittsburgh Skin and Cancer Foundation since its inception in 1923, says:

"Poison of poison ivy is a sensitizing agent. It does not affect every one adversely. Even those in whom it causes a dermatitis are not afflicted by it the first or perhaps the second time they come in contact with it."

THE ROSTER OF THE ASSOCIATION

The Annual Roster of the Medical Association of the State of Alabama 1946 Roster by County Societies

ABBREVIATIONS AND SYMBOLS

(S.) indicates that the physician is in the service of his country.
mc Ala. 06 indicates school and year of graduation.
cb 94 indicates licensure by county board of medical examiners in county where located, and year licensed.
cb Butler 94 indicates county board of medical examiners granting license, and year licensed.
sb 10 indicates licensure by the State Board of Medical Examiners, and year licensed.
recip. Miss. 27 indicates licensure by reciprocity, the reciprocating state, and year reciprocity was granted.
NBE indicates licensure by reciprocity with the National Board of Medical Examiners.
• indicates that the Health Officer is serving two counties, and footnote gives county where credentials may be found.

(1) AUTAUGA COUNTY
Montgomery 1874

President—J. E. Wilkinson ..... Prattville
Vice-President—G. M. Taylor ..... Prattville
Secretary-Treasurer—E. M. Moore ..... Prattville
County Health Officer—E. M. Moore ..... Prattville

Censors—J. E. Wilkinson, Chairman, Prattville; G. E. Newton, Prattville; E. M. Thomas, Prattville; G. M. Taylor, Prattville; James Tankersley, Prattville.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Moore, Elisha M., mc Ala. 11, sb 13, Prattville.
Newton, George E., mc Tenn. 35, sb 36, Prattville.
Shanks, Rufus George, mc Memphis Hosp. 01, cb Butler 01, Autaugaville.
Tankersley, James, mc Ala. 06, cb Crenshaw 06, Prattville.
Taylor, George Malcolm, mc Atlanta P. & S. 05, cb Montgomery 05, Prattville.
Thomas, Eugene Marvin, mc P. & S. Baltimore 07, cb 07, Prattville.
Wilkinson, John Edward, Jr., mc Univ. South 00, cb 00, Prattville.
Total 7

PHYSICIANS NOT MEMBERS

Campbell, V. O., mc Ala. 00, cb 00, Billingsley.
Total 1

(2) BALDWIN COUNTY
Anniston 1886

President—W. C. Holmes ..... Foley
Vice-President—C. R. Sherman ..... Bay Minette
Secretary-Treasurer—W. B. Nelson ..... Bay Minette
County Health Officer—W. B. Nelson ..... Bay Minette

Censors—J. C. McLeod, Chairman, Bay Minette; C. G. Godard, Fairhope; P. M. Hodgson, Stockton; R. A. Hail, Robertsdale; W. C. Holmes, Foley.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Britton, Jas. Woodruff, mc Emory 27, recip. Ga. 30, Foley.
Dahlgren, Leora Perry, mc S. C. 23, recip. W. Va. 43, Fairhope.
Godard, Claud George, mc Ala. 14, sb 14, Fairhope.
Gragg, Vincent J., mc Tulane 08, sb 06, Magnolia Springs.
Hail, R. A., mc Tenn. 94, cb 01, Robertsdale.
Hodgson, Philip Morton, mc Atlanta 89, cb Monroe 89, Stockton.
Holmes, William Coghlan, mc Tulane 24, recip. La. 26, Foley.
Jordan, Henry C., mc LSU 34, recip. La. 37, Robertsdale.
Jordan, Henry W., mc Memphis Hosp. 12, sb 12, Robertsdale.
McLeod, John Calvin, mc Ala. 00, cb Coosa 00, Bay Minette.
Meeks, Alfred A., mc Ala. 14, sb 14, Foley.
Nelson, William Bruce, mc Tulane 37, recip. La. 39, Bay Minette.
Sherman, Charles R., mc Tulane 42, sb 43, Bay Minette.
Skinner, Percy B., mc Ala. 05, cb Conecuh 05, Fairhope.
Total 14

PHYSICIANS NOT MEMBERS

Armistead, Sidney Davidson, mc Ala. 10, sb 11, Robertsdale.
Jones, Thomas Wilkins, mc Memphis Hosp. 06, recip. Tenn. 41, Loxley.
Stanley, Robert Hendricks, mc Ala. 94, cb Butler 94, Foley.
Teaford, Benjamin J., mc Univ. Louisville 02, recip. Ind. 37, Fairhope.
Van Iderstine, Reginald, mc Chicago 06, cb 07, Daphne.
Total 5

(3) BARBOUR COUNTY
Eufaula 1878

President—R. O. Norton ..... Louisville
Vice-President—J. B. Adams ..... Eufaula
Secretary-Treasurer—G. O. Wallace ..... Clayton
County Health Officer—G. O. Wallace ..... Clayton

Censors—J. S. Tillman, Chairman, Clio; R. O. Norton, Louisville; James Reid, Clayton; J. B. Adams, Eufaula; P. P. Salter, Eufaula.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Adams, John Ball, mc Vanderbilt 30, sb 30, Eufaula.
Bennett, Clarence R., mc Emory 28, recip. Ga. 29, Eufaula.
Britt, Walter Stratton, Jr., mc Cornell 31, sb 31, Eufaula.
Clark, Hugh G., mc Texas 34, recip. Texas 37, Clayton. (S.)
Comer, Edward T., mc Vanderbilt 35, sb 35, Eufaula.
Eppes, Nell R., mc LSU 42, recip. La. 45, Eufaula.
McInnis, William R., mc Memphis Hosp. 96, cb 99, Clio.
McLaughlin, James Daniel, mc Ala. 10, sb 10, Blue Springs.
Norton, Robert Olon, mc Ala. 11, sb 11, Louisville.
Reid, James, mc Ala. 12, sb 12, Clayton.
Rodriguez, Jose M., mc Ark. 26, recip. La. 34, Louisville.
Salter, Paul Pullen, mc Tulane 16, sb 16, Eufaula.
Tillman, John S., mc Grant 07, cb 07, Clio.
Wallace, George Oscar, mc Ala. 91, cb 91, Clayton.
White, Robert Lee, mc Ala. 98, sb 98, Mt. Andrew.
Total 15

PHYSICIANS NOT MEMBERS

McCoo, Thomas V. (col.), mc Leonard 06, cb 07, Eufaula.
Total 1

(4) BIBB COUNTY
Birmingham 1887

President—S. C. Meigs ..... Centerville
Vice-President—L. E. Peacock ..... W. Blocton
Secretary-Treasurer—J. R. Long ..... Centerville
County Health Officer—J. R. Long* ..... Centerville

Censors—S. C. Meigs, Chairman, Centerville; C. F. Krout, Brent; L. E. Peacock, West Blocton; T. E. Schoolar, Centerville; W. J. B. Owings, Brent.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Crowder, John W., mc Univ. South. 04, cb 05, West Blocton.
Krout, Charles F., mc Ala. 95, cb 95, Brent.
Meigs, Stephen C., mc Ala. 02, cb 02, Centerville.
Montgomery, J. Ethel (Mrs. J. W. Crowder), mc Univ. Minn. 28, recip. Minn. 32, Belle Ellen.
Nicholson, Cooper, mc Ala. 13, sb 19, Centerville.
Owings, William J. B., mc Tulane 32, sb 32, Brent.
Peacock, Lovic Edward, mc Ala. 92, cb Marengo 92, West Blocton.
Schoolar, Thornly Edward, mc Vanderbilt 92, cb 92, Centerville.
Tucker, John S., mc Ala. 06, cb Marengo 06, Dixiana (Jefferson).
Total 9

PHYSICIANS NOT MEMBERS

Pipes, James Lee, mc Univ. Louisville 38, recip. Ky. 46, Marvel.
Pratt, Alsey Clements Jr., mc Washington Univ. 43, recip. Mo. 46, Centerville.
Total 2

(5) BLOUNT COUNTY
Eufaula 1878

President—N. C. Denton ..... Oneonta
Vice-President—T. M. Towns ..... Oneonta
Secretary-Treasurer—C. L. Stansberry ..... Oneonta
County Health Officer—T. M. Towns ..... Oneonta

Censors—E. T. Brown, Chairman, Cleveland; C. L. Stansberry, Oneonta; W. W. Klein, Altoona, Rt. 2; T. M. Towns, Oneonta; N. C. Denton, Oneonta.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Brown, Elridge Tracy, mc Vanderbilt 17, recip. Tennessee 19, Cleveland.
Denton, Marvin, mc Univ. Nashville 05, cb 07, Oneonta.
Denton, Nathan Carter, mc Univ. Nashville 05, cb 06, Oneonta.
Klein, Warwick Wesley, mc Univ. Louisville 05, recip. Ky. 19, Altoona, Rt. 2.
Miles, William C., mc Ala. 00, cb Limestone 00, Oneonta.
Self, George Washington, mc Baltimore 90, cb 90, Trafford.
Stansberry, Chas. Lee, mc Grant 99, cb Fayette 01, Oneonta.
Towns, Thos. M., mc Univ. Ark. 29, sb 29, Oneonta.
Whitehead, Frank Fay, mc Ark. 33, recip. Ark. 34, Neosho, Mo.
Whitehead, Vernon Erick, mc Ala. 15, sb 15, Blountsville.
Total 10

PHYSICIANS NOT MEMBERS

Bell, James Edgar, mc Univ. Nashville 91, sb 17, Trafford, Rt. 1. (License revoked April 19, 1943.)

*See also Perry County.

Hendrix, Clive V., mc Univ. Tenn. 27, recip. Tenn. 29, Oneonta.
Total 2

(6) BULLOCK COUNTY
Eufaula 1878

President—C. M. Franklin ..... Union Springs
Vice-President—C. W. McDonald ..... Union Springs
Secretary-Treasurer—J. K. Haygood ..... Union Springs
County Health Officer—C. W. McDonald ..... Union Springs

Censors—J. K. Haygood, Chairman, Union Springs; W. H. McCaslan, Union Springs; C. M. Franklin, Union Springs; C. W. McDonald, Union Springs.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Franklin, Charles Moore, mc P. & S. N. Y. 98, cb 98, Union Springs.
Haygood, James Kern, mc Western Reserve 23, recip. Ohio 28, Union Springs.
McCaslan, Wm. Hill, mc Columbia 21, sb 28, Union Springs.
McDonald, Charles W., mc Univ. Nashville 04, cb Cullman 04, Union Springs.
Parker, Delmer F., mc Univ. Ore. 37, recip. Ore. 39, Pawnee, Okla.
Total 5

PHYSICIANS NOT MEMBERS

Gomez, Clifton Jules (col.), mc Howard 39 sb 41, Union Springs.
Total 1

(7) BUTLER COUNTY
Montgomery 1875

President—J. L. Bryan ..... Greenville
Vice-President—R. H. Watson ..... Georgiana, R. F. D.
Secretary-Treasurer—E. F. Leatherwood ..... Greenville
County Health Officer—E. F. Leatherwood* ..... Greenville

Censors—J. C. Johnston, Chairman, Chapman; J. L. Bryan, Greenville; James Jordan, McKenzie; H. P. Speir, Greenville; L. V. Stabler, Greenville.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Bryan, James Lafayette, mc Ala. 01, cb Crenshaw 01, Greenville.
Gay, Otis Franklin, mc Tulane 35, recip. La. 38, Greenville. (S.)
Henderson, Hiliary H., mc Ala. 08, sb 08, Greenville.
Johnston, Jos. Cephas, mc Atlanta P. & S. 12, recip. Ga. 26, Chapman.
Jordan, James, mc Memphis Hosp. 12, sb 12, McKenzie.
Kendrick, James E., mc Tulane 33, recip. La. 35, Greenville.
Piper, Barney Lee, mc Atlanta 16, sb 16, Georgiana.
Speir, Henry Philip, mc Univ. Louisville 31, sb 32, Greenville.
Speir, Philip Van Buren, mc Ala. 00, cb Wilcox 00, Greenville.
Stabler, Aubrey A., mc S. C. 37, recip. S. C. 38, Greenville
Stabler, E. Vernon, mc Harvard 29, Nat. Bd. Ex. 32 Greenville.
Stabler, Lorenzo V., mc Vanderbilt 98, cb 98, Greenville.
Wall, Conrad, mc Ala. 97, cb 97, Forest Home.
Watson, Robert H., mc Ala. 05, cb 05, Georgiana, RFD.
Total 14

PHYSICIANS NOT MEMBERS

None.

*See also Lowndes County.

(8) CALHOUN COUNTY
Montgomery 1881

President—G. G. Woodruff ..... Anniston
Vice-President—J. H. Meigs ..... Anniston
Secretary—M. S. Adams ..... Anniston
Treasurer—W. M. Salter ..... Anniston
County Health Officer—W. E. White (Act.) ..... Anniston

Censors—T. F. Huey, Sr., Chairman, Anniston; N. T. Davie, Anniston; N. E. Sellers, Anniston; C. H. Cleveland, Anniston; W. M. Salter, Anniston.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Adams, Montague S., mc Tulane 38, sb 39, Anniston.
Caffey, Benjamin F., mc Tulane 11, sb 11, Choccolocco.
Chilton, Alfred M., mc Vanderbilt 34, recip. Tenn 35, Anniston.
Cleveland, C. Hal, mc Vanderbilt 15, sb 15, Anniston.
Cleveland, Hunt, mc Vanderbilt 32, recip. Tenn. 36, Anniston.
Davie, Nuckols T., mc Tulane 09, sb 09, Anniston.
Durden, John D., mc Ala. 17, sb 17, Anniston.
Gray, Hugh E., mc Univ. Mich. 24, recip. Mich. 26, Anniston.
Green, Elbert Pierce, mc Ga. 99, cb Randolph 99, Jacksonville.
Hamilton, Grover Cleveland, mc Emory 16, sb 16, Piedmont.
Huey, Thomas F., mc Tulane 01, cb Perry 01, Anniston.
Huey, Thomas F., Jr., mc Vanderbilt 32, recip. Tenn. 34, Anniston.
Kimmey, John Mason, mc Emory 28, sb 28, Elba.
Levi, Irwin P., mc Pa. 09, sb 09, Anniston.
Leyden, Horace A., mc Tenn. 09, sb 10, Anniston.
Lloyd, William K., mc Tulane 21, recip. Va. 38, Anniston.
Lucas, Robert L., mc Vanderbilt 32, recip. Tenn. 34, Anniston.
McCraw, Reuben T., mc Ala. 13, sb 14, Oxford.
Meharg, Shelton T., mc Memphis Hosp. 00, cb 00, Anniston.
Meharg, William G., mc Memphis Hosp. 99, cb 99, Anniston.
Meigs, James H., mc Vanderbilt 25, sb 25, Anniston.
Morton, Lloyd E., mc Atlanta P. & S. 11, recip. Ga. 18, Anniston.
Planck, Ernest H., Jr., mc Tulane 37, recip. La. 38, Anniston.
Posey, James F., mc Emory 17, sb 18, Annlston.
Rayfield, John Dexter, mc Tenn. 34, recip. Tenn. 37, Jacksonville.
Salter, Wilbur M., mc Ala. 07, cb Conecuh 07, Anniston.
Sellers, Neil E., mc Ala. 05, sb 05, Annlston.
Spearman, George Knox, mc Vanderbilt 31, sb 31, Anniston.
Van Sant, John W., mc Georgia Eclectic 04, cb Marshall 06, Pledmont.
Van Sant, Thomas E., mc Tenn. 31, recip. Tenn. 32, Piedmont.
Watson, Jerre, mc Ala. 16, sb 16, Annlston.
Weaver, Frank C., mc Ala. 13, sb 13, Anniston.
White, William E., mc Harvard 37, sb 38, Anniston.
Whiteside, Hamlin B., mc Ala. 10, sb 10, Ohatchee.
Whiteside, John M., mc Vanderbilt 84, cb 84, Anniston (Retired).
Williams, James, mc Ala. 10, sb 10, Jacksonville.
Woodruff, Gerald G., mc Tulane 20, sb 20, Anniston.
Woolf, Jos. H., mc Ill. 27, sb 27, Piedmont.
Total 38

PHYSICIANS NOT MEMBERS

Hunt, James Edgar, mc Univ. Ga. 04, recip. Ga. 45, Ordnance Depot, Anniston.
Jackson, Fred D. (col.), mc Meharry 14, sb 14, Anniston.
Meharg, Robert L., mc Ala. 06, cb 06, Alexandria.
Rodgers, Gordon A. (col.), mc Meharry 08, sb 07, Anniston.
Shipp, Larry G., mc LSU 40, recip. La. 44, Anniston.
Vann, Paul D., mc Ala. 96, cb DeKalb 96, Anniston.
Total 6

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(9) CHAMBERS COUNTY
Montgomery 1881

President—M. C. Hunt ..... Fairfax
Vice-President—N. A. Wheeler, Sr. ..... Lafayette
Secretary-Treasurer—H. S. Weldon ..... Lanett
County Health Officer—A. H. Graham* (Acting) Lafayette

Censors—M. C. Hunt, Chairman, Fairfax; A. B. Lee, Lanett; W. L. Marshall, Langdale; J. H. Moore, Lafayette; W. H. Riser, Lafayette.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Auston, Paul W., mc Univ. Pa. 29, sb 30, Shawmut.
Cowles, Wm. L., mc Va. 08, recip. Va. 21, Shawmut.
Ferguson, Andrew D., mc Emory 38, recip. Ga. 46, Shawmut.
Frazer, Ben F., mc Tulane 14, sb 15, Lafayette.
Gaines, William D., mc Ala. 92, cb 92, State Prison Hosp., Atmore.
Hunt, M. C., mc Tulane 23, sb 23, Fairfax.
Lee, Aubrey Bernard, mc Vanderbilt 32, sb 32, Lanett.
Marshall, W. L., mc P. & S. Atlanta 06, cb Randolph 06, Langdale.
Moore, James Henry, mc Emory 97, recip. S. C. 42, Lafayette.
Morrow, R. P., mc Ala. 11, sb 11, West Point, Ga.
Perley, A. I., mc Rush 35, sb 36, Mass. Gen Hosp., Boston.
Riser, William H., mc Ala. 08, sb 07, Lafayette.
Simmons, Shelton C., Jr., mc Emory 38, recip. Ga. 45, Fairfax.
Weldon, Howard S., mc S. C. 40, sb 41, Lanett.
Wheeler, N. A., mc Atlanta P. & S. 07, cb 07, Lafayette.
Wheeler, N. A., Jr., mc Emory 39, recip. Ga. 40, Lafayette.
Wood, William Gross, mc Emory 41, sb 42, Lafayette.
Total 17

PHYSICIANS NOT MEMBERS

Calhoun, Samuel James, mc Ala. 15, sb Ga. 17, Langdale.
Haralson, Thomas H., mc Memphis Hosp. 99, cb Tallapoosa 99, Cusseta.
Total 2

HONORARY MEMBERS

Byrd, Mark M., mc Emory 25, sb Ga. 25, West Point.
McCulloh, Hugh, Jr., mc Emory 25, sb Ga. 25, West Point.
Morgan, James Calvin, mc Ala. 14, sb 16, West Point.
Williams, Chas. O., mc Atlanta P. & S. 06, sb Ga. 06, West Point.

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(10) CHEROKEE COUNTY
Tuscaloosa 1887

President—J. F. Emerson ..... Spring Garden
Vice-President—W. J. Campbell ..... Center
Secretary-Treasurer—S. C. Tatum ..... Center
County Health Officer—Samuel C. Tatum ..... Center

Censors—S. C. Tatum, Chairman, Center; J. F. Emerson, Spring Garden; W. J. Campbell, Center.

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*See also Lee County.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Campbell, William J., mc Tenn. 31, sb 31, Center.
Emerson, Jefferson Forrest, mc Grant 95, cb Marshall 97, Spring Garden.
Tatum, Samuel Carter, mc Vanderbilt 93, cb 93, Center.
White, William Walden, mc Emory 24, recip. Ga. 25, Center.
Total 4

PHYSICIANS NOT MEMBERS

Grambling, Joseph W., mc Ala. 01, cb Franklin 01, Center.
Total 1

(11) CHILTON COUNTY
Selma 1879

President—C. R. Moore	Clanton
Vice-President—C. O. Lawrence	Clanton
Secretary-Treasurer—Joe W. Moore	Clanton
County Health Officer—E. M. Moore*	Clanton

Censors—R. J. Eiland, Chairman, Clanton; W. C. Golden, Clanton; C. R. Moore, Clanton; C. O. Lawrence, Clanton; H. G. Franklin, Thorsby.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Day, Edward, mc Tulane 11, sb 16, Maplesville.
Eiland, John Daniel, mc Univ. Nashville 11, sb 12, Verbena.
Eiland, Robert John, ng, sb 07, Clanton.
Franklin, Horace G., mc Louisville 30, sb 30, Thorsby.
Golden, William C., mc LSU 34, recip. Miss. 37, Clanton.
Hayes, Julius Poe, mc Memphis Hosp. 96, cb 96, Clanton.
Lawrence, Claud O., mc Emory 17, sb 17, Clanton.
Moore, Charles R., mc Tulane 35, sb 35, Clanton.
Moore, Joseph Watts, mc Tulane 41, sb 42, Clanton.
Parnell, Charles Nicholas, mc Ala. 91, cb 91, Maplesville.
Strock, Charles Stewart, mc Vanderbilt 04, cb 04, Verbena.
Total 11

PHYSICIANS NOT MEMBERS

None.

(12) CHOCTAW COUNTY
Selma 1879

President—V. S. Gully	Butler
Vice-President—W. J. Barber	Butler
Secretary-Treasurer—T. M. Littlepage	Butler
County Health Officer—T. M. Littlepage	Butler

Censors—H. W. Robinson, Chairman, Edna; R. W. Shaw, Gilbertown; W. J. Barber, Butler; T. M. Littlepage, Butler; J. W. Rudder, Toxey.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Allen, Ralph H., mc Atlanta 14, sb 27, Silas.
Barber, William J., mc Tulane 29, sb 29, Butler.
Gully, Virgil S., mc Tulane 38, recip. La. 42, Butler.
Littlepage, Thos. M., mc Ala. 04, cb 04, Butler.
Miller, Samuel T., mc Ala. 01, cb Greene 04, Yantley.
Robinson, Henry W., mc Memphis Hosp. 01, cb 01, Edna.
Rudder, John W., mc Univ. Nashville 07, cb 07, Toxey.
Shaw, Rowell Wilbur, mc Memphis Hosp. 00, cb Washington 00, Gilbertown.
Total 8.

PHYSICIANS NOT MEMBERS

Elliott, Thomas C., mc Tulane 37, sb 37, Butler.
Total 1

*See also Autauga County.

(13) CLARKE COUNTY
Greenville 1885

President—W. S. Chapman	Jackson
Vice-President—L. W. Chapman	Jackson
Secretary-Treasurer—R. D. Neal	Grove Hill
County Health Officer—R. D. Neal (Act.)	Grove Hill

Censors—R. D. Neal, Chairman, Grove Hill; J. T. Pugh, Grove Hill; W. S. Chapman, Jackson; J. C. Godbold, Whatley; L. W. Chapman, Jackson.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Bedsole, James Goodman, mc Vanderbilt 11, sb 11, Jackson.
Chapman, Leland W., mc Ala. 11, sb 11, Jackson.
Chapman, Will Stewart, mc Emory 24, sb 24, Jackson.
Davidson, James S., mc Tulane 29, recip. La. 39, Thomasville.
Godbold, John Cooper, Jr., mc Ala. 11, sb 11, Whatley.
Irons, Richard Allen, mc Emory 24, sb 24, Thomasville.
McCrary, Gaines C., mc Ala. 07, sb 07, Jackson.
Neal, Ralph Dewey, mc Emory 23, recip. Ga. 24, Grove Hill.
Nichols, Cobb, mc Ala. 98, cb 01, Carlton.
Pugh, John T., mc Vanderbilt 97, cb 97, Grove Hill.
Robinson, Amos N., mc Ala. 93, cb 94, Coffeeville.
Shaw, Robert E., mc Ala. 98, sb 99, Whatley.
White, Alexander L., mc Memphis Hosp. 98, cb 98, Thomasville.
Total 13

PHYSICIANS NOT MEMBERS

None.

(14) CLAY COUNTY
Selma 1879

President—J. W. Jordan	Ashland
Vice-President—J. L. Hilt	Lineville
Secretary-Treasurer—J. S. Gay	Ashland
County Health Officer—B. A. Stephens (Act.)	Ashland

Censors—J. S. Gay, Chairman, Ashland; J. W. Jordan, Ashland; B. A. Stephens; Lineville; J. L. Hilt, Lineville.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Gay, Jas. S., mc Ala. 05, cb 05, Ashland.
Hilt, John L., mc Atlanta Sou. 89, cb 89, Lineville.
Jordan, Joseph Wiley, mc Atlanta 91, cb 87, Ashland.
Owens, Arthur H., mc Ala. 05, cb 05, Ashland.
Shaddix, Marion L., mc Ala. 10, sb 10, Veterans Hospital Montgomery.
Stephens, Albert R., mc Atlanta Sou. 88, cb 88, Delta.
Stephens, Burrel Anderson, mc Ala. 92, cb 92, Lineville.
White, Henry Clay, mc Tulane 39, recip. La. 45, Ft. Walton, Fla.
Total 8

PHYSICIANS NOT MEMBERS

Killgore, James J.. mc Memphis Hosp. 01, cb 01, Wadley.
Total 1

(15) CLEBURNE COUNTY
Selma 1884

President—L. R. Wright	Heflin
Secretary-Treasurer—F. R. Wood	Heflin
County Health Officer	Heflin

Censors—L. R. Wright, Chairman, Heflin; F. R. Wood, Heflin.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Dorough, John L., mc Okla. 15, recip. Okla. 21, Prentiss, Miss.
Wood, Frank Richard, mc Chattanooga 01, cb Randolph 01, Heflin.
Wright, Lee Roy, mc Univ. Nashville 00, cb 00, Heflin.
Total 3

PHYSICIANS NOT MEMBERS

None.

(16) COFFEE COUNTY
Greenville 1885

President—E. G. Bragg ..... Jack
Vice-President—D. A. Bush ..... New Brockton
Secretary-Treasurer—J. S. DuBois ..... Enterprise
County Health Officer—G. L. Weidner ..... Elba

Censors—C. P. Hayes, Chairman, Elba; E. L. Gibson, Enterprise; D. A. Bush, New Brockton; B. F. Thrower, Enterprise; E. G. Bragg, Jack.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Bragg, Eugene G., mc Ala. 14, sb 15, Victoria (**mail Jack**).
Braswell, William Cicero, mc Tulane 09, sb 09, Elba.
Bush, David A., mc Ala. 07, sb 07, New Brockton.
Crook, William Randolph, mc Chattanooga 02, cb 02, Elba.
DuBois, James S., mc Tulane 37, sb 37, Enterprise.
Gibson, Edward Lee, mc Ala. 13, sb 13, Enterprise.
Harrison, King William, mc Ala. 96, cb Lowndes 97, Enterprise.
Hayes, Charles Phillip, mc Louisville 06, cb Houston 06, Elba.
Massey, Bartlett Jones, mc Ala. 03, sb Jefferson 03, Enterprise.
Stanley, William Alfred, mc Ala. 12, cb 12, Veterans' Facility, Montgomery.
Thrower, Benjamin Franklin, mc Ala. 11, sb 12, Enterprise.
Weidner, Garland L., mc Univ. Louisville 27, recip. Ky. 42, Elba.
Total 12

PHYSICIANS NOT MEMBERS

Fussell, James A., mc Tenn. 25, recip. Tenn. 26, New Brockton. (License revoked March 6, 1945.)
Total 1

(17) COLBERT COUNTY
Montgomery 1881

President—Loren Gary ..... Tuscumbia
Vice-President—R. D. Wright ..... Sheffield
Secretary-Treasurer—R. E. Harper ..... Tuscumbia
County Health Officer—R. E. Harper ..... Tuscumbia

Censors—C. R. Whitman, Chairman, Tuscumbia; W. H. Blake, Jr., Sheffield; W. M. Pierce, Tuscumbia; G. F. Littlepage, Sheffield; R. E. Gary, Tuscumbia.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Blake, Wyatt Heflin, Jr., mc Vanderbilt 21, sb 21, Sheffield.
Brackin, Odie D., mc Univ. Ark. 40, recip. Ark. 41, Tuscumbia.
Cox, D. D., mc Rush 29, sb 31, Sheffield.
Finley, William Albert, ng, sb 09, Cherokee.
Gary, Loren, Jr., mc Univ. Ga. 32, recip. Ga. 41, Tuscumbia.
Gary, Robert Eugene, mc Univ. Ga. 32, recip. Ga. 37, Tuscumbia.
Griffith, Howard Asa, mc Ala. 07, cb Jefferson 07, Sheffield.
Harper, Robt. Edwin, mc S. C. 25, recip. S. C. 28, Tuscumbia.
Hufstedler, Joe G., mc Univ. Tenn. 34, recip. Tenn. 44, Methodist Hospital, Memphis.
Littlepage, George Frederick, mc Tulane 09, sb 07, Sheffield.
Lyles, Robin, mc Univ. Tenn. 36, recip. Tenn. 46, Leighton.
Maxwell, Walter J., mc Univ. South 01, cb Tuscaloosa 01, Sheffield.
McGrath, William Edward, mc Ala. 20, sb 20, Sheffield.
Pierce, William M., mc Memphis Hosp. 03, cb Cullman 04, Tuscumbia.
Trapp, Walter R., mc Emory 32, recip. Miss. 33, Tuscumbia.
Whitman, Clayborne Russell, mc Ala. 09, sb 09, Tuscumbia.
Wright, Rufus Denson, mc Tenn. 29, sb 29, Sheffield.
Total 17

PHYSICIANS NOT MEMBERS

Palmer, Chas. R., mc Tenn. 15, sb 15, Sheffield. (Retired.)
Ruffin, W. L. (col.), mc Leonard 10, cb Montgomery 10, Sheffield.
Total 2

(18) CONECUH COUNTY
Selma 1879

President—R. W. Stallworth ..... Evergreen
Vice-President—R. W. Hendrix ..... Evergreen
Secretary-Treasurer—E. L. Kelly ..... Evergreen
County Health Officer—E. L. Kelly ..... Evergreen

Censors—J. W. Hagood, Chairman, Evergreen; E. L. Stallworth, Evergreen; U. L. Jones, Brooklyn; R. W. Stallworth, Evergreen; W. R. Carter, Repton.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Carter, William Robert, mc Emory 24, sb 24, Repton.
Hagood, John W., mc Ala. 98, cb Lowndes 98, Evergreen.
Hendrix, R. Walker, mc Tulane 33, recip. La. 34, Evergreen.
Jones, Urban Louis, mc Missouri 04, cb Geneva 04, Brooklyn.
Kelly, Edward Lamar, mc Ala. 00, cb 00, Evergreen.
Newton, Guy Guerdon, mc Ala. 97, cb 97, Evergreen.
Stallworth, Emmet Lemuel, mc Ala. 94, cb 94, Evergreen.
Stallworth, Robert W., mc Emory 29, sb 29, Evergreen.
Total 8

PHYSICIANS NOT MEMBERS

None

(19) COOSA COUNTY
Birmingham 1883

President—E. Argo ..... Goodwater
Secretary-Treasurer—W. H. Goff ..... Rockford
County Health Officer—C. S. Cotlin* ..... Rockford

Censors—W. H. Goff, Chairman, Rockford; Eugene Argo, Goodwater.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Argo, Eugene, mc Vanderbilt 91, cb 91, Goodwater.
Goff, William Hunter, mc Vanderbilt 35, recip. Tenn. 38, Rockford.
Total 2

PHYSICIANS NOT MEMBERS

Johns, Stanley W., mc Ala. 13, recip. Ga. 21, Goodwater.
Total 1

*See also Elmore County.

(20) COVINGTON COUNTY
Montgomery 1888

President—E. R. MacLennan ..... Opp
Vice-President—J. C. Hurst ..... Opp
Secretary-Treasurer—C. D. McLeod ..... Andalusia
County Health Officer—C. D. McLeod ..... Andalusia

Censors—L. L. Parker, Chairman, Andalusia; C. H. Chapman, Andalusia; H. W. Waters, Opp; G. L. Wood, Andalusia; J. H. Kyzar, Andalusia.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Campbell, Daniel J., mc Miss. 09, sb 09, Dozier, RFD.
Chapman, Charles Hicks, mc Tulane 09, sb 09, Andalusia.
Dunn, James G., Jr., mc Emory 40, recip. 46. Opp.
Evers, Ray, mc Vanderbilt 38, recip. Tenn. 40, Andalusia.
Gallaway, Fletcher W., mc Memphis Hosp. 03, cb Houston 03, Florala.
Hamner, Samuel C., mc Ala. 09, sb 10, Andalusia.
Holley, J. F., mc Emory 22, sb 22, Lockhart.
Hurst, John C., mc Emory 25, sb 25, Opp.
Kyzar, J. H., mc Tulane 13, sb 13, Andalusia.
MacLennan, Edward R., mc Emory 35, recip. Ga. 36, Opp.
McDonald, Juanita Bolton, mc Woman's Med. Col. of Pa. 41, sb 42, Andalusia.
McLeod, Coleman D., mc S. C. 33, sb 34, Andalusia.
Parker, Lorenzo Dowe, mc Ala. 01, cb 01, Andalusia.
Parker, Leslie L., mc LSU 40, recip. La. 41, Andalusia.
Ray, Elgin A., mc Tulane 27, sb 27, Andalusia.
Waters, Hinton W., mc Ala. 13, sb 13, Opp.
Winters, Henry B., mc St. Louis P. & S. 06, recip. Ark. 25, Red Level.
Wood, Gordon L., mc Ala. 11, sb 11, Andalusia.
Woodley, Lawrence S., mc Tulane 37, sb 37, Andalusia. (S.)
Young, Ferrin, mc Vanderbilt 09, sb 09, Florala.

Total 20

PHYSICIANS NOT MEMBERS

Dowdy, Robert W., mc Tenn. 91, cb Randolph 91, Opp, Rt. 3.
Ham, Nelson M., mc Ala. 98, cb Coffee 98, Opp, Rt. 3.

Total 2

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(21) CRENSHAW COUNTY
Mobile 1882

President—J. C. Ford ..... Luverne
Vice-President—L. A. Windham ..... Luverne
Secretary-Treasurer—J. O. Foster ..... Luverne
County Health Officer—Jas. O. Foster ..... Luverne

Censors—J. W. Davidson, Chairman, Brantley; H. S. Abercrombie, Petrey; F. J. Lee, Luverne; L. A. Windham, Luverne; M. L. Watkins, Glenwood.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Abercrombie, Henry S., ng, sb 98, Petrey.
Davidson, James W., mc Chattanooga 06, recip. Tenn. 24, Brantley.
Ford, Julian C., mc P. & S. St. Louis 96, cb 96, Luverne.
Foster, James Oscar, mc P. & S. Atlanta 06, cb 06, Luverne.
Lee, Frank J., mc Ala. 08, sb 08, Luverne.
Watkins, Martin L., mc Vanderbilt 99, cb 99, Glenwood.
Windham, Lewis A., mc Atlanta 16, sb 16, Luverne.

Total 7

PHYSICIANS NOT MEMBERS

Bell, Walter Houston, mc Univ. Nashville 06, cb 06, Dozier.

Total 1

(22) CULLMAN COUNTY
Anniston 1886

President—R. B. Dodson ..... Cullman
Vice-President—Frank Stitt ..... Cullman
Secretary-Treasurer—M. S. Whiteside ..... Cullman
County Health Officer—M. S. Whiteside ..... Cullman

Censors—V. P. Hughes, Chairman, Cullman; R. A. Culpepper, Cullman; J. C. Martin, Cullman; F. C. Stitt, Cullman; E. D. McAdory, Cullman.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Beatty, Thomas D., mc Rush 36, recip. Wis. 39, Cullman.
Camp, William A., mc Emory 41, sb 41, Employee's Hosp., Fairfield.
Cornelius, L. B., mc Ala. 12, sb 13, Cullman, Rt. 5.
Culpepper, Rufus Alva, mc Chicago M. & S. 14, sb 15, Cullman.
Daves, James G., mc Emory 20, sb 20, Cullman.
Dodson, Robert Bruce, mc Ala. 13, sb 13, Cullman.
Gross, Chas. M., mc Ala. 08, sb 08, Cullman, Rt. 3.
Gross, Robert Merrill, mc Tenn. 41, recip. Tenn. 43 Cullman.
Hays, Luther, mc Chattanooga 00, cb 01, Cullman.
Herrin, Charles Edward, mc Chattanooga 02, cb 02, Cullman.
Hughes, Virgil P., mc Emory 26, sb 26, Cullman.
Markheim, Herbert., mc New York 38, NBE 40, Iowa City, Iowa.
Martin, James Cordie, mc Chattanooga 05, cb Morgan 05, Cullman.
McAdory, Edward Dudley, mc Ala. 14, sb 15, Cullman.
Rowe, George T., mc Loyola 28, sb 29, Hanceville.
Sandlin, E. G., mc Vanderbilt 07, sb 08, Holly Pond.
Stitt, Frank C., mc Univ. Ark. 28, sb 28, Cullman.
Whiteside, M. S., mc Tulane 20, sb 20, Cullman.
Wood, James W., mc P. & S. Atlanta 97, cb Clay 97, Hanceville.

Total 19

PHYSICIANS NOT MEMBERS

Graf, Charles Christopher, mc Ala. 13, sb 14, Steppville. (Retired.)
Hale, Prior, old law, cb Morgan 80, Vinemont, Rt. 2. (Retired.)
Head, Walter H., mc Tulane 24, recip. La. 27, Cullman.
Winn, John Thomas, mc Tenn. 93, cb 93, Baileyton. (Retired.)

Total 4

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(23) DALE COUNTY
Tuscaloosa 1887

President—N. W. Holman ..... Ozark
Vice-President—G. R. Smith ..... Ozark
Secretary-Treasurer—W. L. Orr ..... Ozark
County Health Officer—W. L. Orr ..... Ozark

Censors—G. R. Smith, Chairman, Ozark; W. A. Parrish, Midland City; Moses McGhee, Daleville; H. C. Stovall, Pinckard; A. D. Matthews, Ozark.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Holman, Norman Willard, mc Emory 35, recip. Ga. 36, Ozark.
Lister, Robert H., mc Ala. 16, sb 16, Ozark.
Matthews, Augustus Douglas, mc Ala. 11, sb 13, Ozark.
McGhee, Moses, mc Atlanta 98, cb Henry 06, Daleville.
Orr, William Lucius, mc Baltimore 04, recip. Ga. 30, Ozark.
Parrish, William A., mc Univ. Nashville 09, sb 10, Midland City.
Smith, Gordon Roysce, mc Tulane 21, sb 21, Ozark.
Stovall, H. C., mc Atlanta 08, sb 09, Pinckard.

Total 8

PHYSICIANS NOT MEMBERS

Espy, Curtis, mc Univ. South 04, cb Henry 04, Midland City.
Total 1

(24) DALLAS COUNTY
Montgomery 1875

President—G. T. Edwards ..... Selma, Rt. 1
Vice-President—D. A. Mason ..... Selma
Secretary-Treasurer—L. T. Lee ..... Selma
County Health Officer—L. T. Lee ..... Selma

Censors—P. Y. Donald, Chairman, Selma; J. S. Chisolm, Selma; W. W. Burns, Selma; D. H. Doherty, Selma; J. P. Chapman, Selma.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Alison, James Fairly, mc Tulane 23, sb 23, Selma.
Alison, Samuel Blakemore, mc Ky. 89, cb 93, Minter.
Armstrong, James Harris, mc Tulane 37, recip. Miss. 46, Selma.
Bayne, Rembert D., mc Tulane 27, sb 27, Selma.
Caine, V. H., mc Ala. 92, cb Wilcox 92, Orrville.
Callaway, Eugene, mc Univ. Va. 04, Bellevue 05, sb 10, Selma.
Chapman, Jesse P., mc Ala. 12, sb 12, Selma.
Chisolm, James Satterfield, mc Tulane 05, cb 06, Selma.
Chisolm, Jos. Raymond, mc Tulane 16, recip. La. 23, Marion Junction.
Chisolm, Robert Patrick, mc Ala. 93, cb 93, Selma, Rt. 4.
DeRamus, William Henry, mc Tulane 31, recip. La. 36, Selma.
Doherty, Drayton H., mc Johns Hopkins 15, sb 15, Selma.
Donald, Pressly Young, mc Tulane 15, sb 15, Selma.
Edwards, Daniel B., mc Ala. 98, cb 98, Tyler, RFD.
Edwards, Geo. Traylor, mc Ala. 12, sb 12, Selma, Rt. 1.
Ehlert, Wm. Emile, mc Tulane 38, recip. La. 42, Selma.
Feulner, Charles Daniel, mc Ky. 05, sb 06, Selma.
Grayson, Richard J., mc Tulane 26, sb 26, Selma.
Harper, William Frantz, mc Harvard 22, sb 23, Selma.
Hermann, Robert Charles, mc Univ. Texas 38, recip. Texas 45, Selma.
Howell, Julian P., mc Tulane 35, sb 35, Selma.
Kenan, James, mc Univ. Va. 97, cb 04, Selma.
Kirkpatrick, Samuel McCurdy, mc Tulane 29, sb 29, Selma.
Lee, Lucien Tennent, mc Ala. 04, cb Barbour 04, Selma.
Long, Randolph N., mc Tulane 35, recip. La. 37, Selma.
Luckie, Kenneth Earl, mc Tulane 27, sb 27, Selma.
Martin, Thomas Marion, mc Vanderbilt 99, cb Chilton 99, Plantersville.
Mason, David A., mc Md. 04, sb 04, Selma.
Moore, Lawrence Henry, mc Ala. 01, cb 01, Orrville.
Moseley, Samuel O. mc Tulane 20, sb 21, Selma.
Pilkington, John Shelton, mc Univ. Tenn. 42, recip. Tenn. 46, Selma.
Schmitz-Dumont, Isabella M., mc Woman's Med. Col., Pa., 39, recip. Pa. 44, Selma.
Skinner, Ira Clifton, mc Ala. 01, cb 01, San Antonio, Texas.
Skinner, Marcus M., mc Ala. 12, sb 12, Selma.
Smith, Josiah H., mc Johns Hopkins 31, recip. Md. 40, Selma.
Stuart, Wm. W., mc Ky. 94, cb Wilcox 94, Selma, Rt. 1.
Wallace, Archibald D., mc Memphis Hosp. 07, cb Autauga 07, Plantersville.
Williams, J. Richard, mc Tulane 31, sb 31, Selma.
Total 38

PHYSICIANS NOT MEMBERS

Dinkins, Pauline (col.), mc Woman's, Pa. 19, sb 19, Selma.
Patton, Madison Knox, mc Tulane 91, cb Greene 91, Selma. (Retired.)
Walker, Nathaniel D. (col.), mc Leonard 13, sb 15, Selma.
Total 3

(25) DeKALB COUNTY
Greenville 1895

President—Briggs Parris ..... Geraldine
Vice-President—J. E. Buzbee ..... Ft. Payne
Secretary-Treasurer—C. D. Killian ..... Ft. Payne
County Health Officer ..... Ft. Payne

Censors—C. D. Killian, Chairman, Ft. Payne; R. J. Guest, Jr., Ft Payne; William Noble, Ft. Payne; G. I. Weatherly, Ft. Payne; J. E. Buzbee, Ft. Payne.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Appleton, Thomas Hayne, mc Chattanooga 92, cb 92, Collinsville.
Buzbee, J. E., mc Ala. 08, sb 10, Ft. Payne.
Casey, M. L., mc Chattanooga 01, cb Marshall 01, Henagar.
Floyd, Milton Tucker, mc Montezuma 98, cb Lee 99, Ft. Payne.
Guest, Reuben John, Jr., mc Emory 31, recip. Ga. 32, Ft. Payne.
Hansard, William Simeon, mc Chattanooga 07, cb 07, Henagar, RFD.
Killian, Claud Dallas, mc Ala. 13, sb 14, Ft. Payne.
Marsh, Jos. S., mc Chicago M. & S. 17, sb 18, Collinsville.
Noble, William, mc Emory 28, recip. Cal. 40, Ft. Payne.
Parris, Briggs, mc Tenn. 13, sb 14, Geraldine.
Richey, Clinton H., mc Louisville 29, recip. Tenn. 31, Valley Head.
Trammell, Edward Lee, mc Tenn. 33, recip Tenn. 34, Ft. Payne.
Weatherly, George I., Jr., mc Tulane 40, sb 41, Ft. Payne.
Wilson, Dilimus Wesley, mc Chattanooga 00, cb Marshall 01, Fyffe, Rt. 2.
Total 14

PHYSICIANS NOT MEMBERS

Bogle, Jos. Hoge, mc Vanderbilt 00, cb 00, Collinsville.
Clayton, A. L., mc Chattanooga 95, cb 95, Fyffe.
Haggard, Daniel Carr, mc Chattanooga 10, recip. Tenn. 20, Sylvania.
Hayes, Charles, mc Chattanooga 03, cb Morgan 03, Fyffe.
Total 4

(26) ELMORE COUNTY
Birmingham 1877

President—J. F. Sewell ..... Wetumpka
Vice-President—O. C. Powell ..... Titus
Secretary-Treasurer—C. S. Cotlin ..... Wetumpka
County Health Officer—C. S. Cotlin ..... Wetumpka

Censors—J. F. Sewell, Chairman, Wetumpka; O. C. Powell, Titus; W. M. Owsley, Eclectic; R. L. Huddleston, Deatsville; G. L. Gresham, Speigner.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Corrington, Dale D., mc Rush 21, recip. Illinois 26, Tallassee.
Cotlin, Chas. S., mc Tenn. 30, sb 31, Wetumpka.
Dunn, Julius E., mc Univ. Louisville 33, recip. Ky. 36, Wetumpka.
Edwards, Winston A., mc Tenn. 36, sb 37, Wetumpka.
Gresham, George L., mc Tulane 05, cb Covington 05, Speigner.
Huddleston, Robert Lee, mc Ga. 90, cb 90, Deatsville.
Lett, Ed. R., mc Louisville 05, cb 07, Tallassee.
Majure, Ernest Odell, mc Emory 32, recip. Miss. 35, Tallassee.
Moore, Ernest G., mc LSU 33, recip. La. 35, Tallassee.
Owsley, W. M., mc Ala. 14, sb 14, Eclectic.
Sewell, John Ferris, mc Vanderbilt 21, sb 21, Wetumpka.
Smith, William Lamar, mc Tulane 43, sb 44, Wetumpka.
Total 12

PHYSICIANS NOT MEMBERS

Boswell, Franklin A., mc Ala. 00, cb Pike 00, Elmore.
Harmon, James Samuel, mc Chattanooga 07, cb 07, Elmore. (License revoked Aug. 8, 1945.)
Milner, Samuel R., mc Ala. 94, cb 97, Eclectic, Rt. 1.
Total 3

(27) ESCAMBIA COUNTY

Greenville 1886

President—J. P. Stallworth ..... Flomaton
Vice-President—V. Q. Rawls ..... Brewton
Secretary-Treasurer—J. O. Lisenby ..... Atmore
County Health Officer—W. B. Nelson* ..... Brewton

Censors—J. O. Lisenby, Chairman, Atmore; J. P. Stallworth, Canoe; G. W. Salley, Atmore; V. Q. Rawls, Brewton; W. L. Abernethy, Flomaton.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Abernethy, William Lordin, mc Ala. 94, cb Monroe 94, Flomaton.
Clemmons, Lowell Henry, mc Rush 42, sb 43, Brewton.
Holley, Al Fonto, mc Louisville 33, recip. Ky. 35, Brewton.
Lisenby, Jas. Otis, mc Tulane 25, recip. La. 27, Atmore.
Marlette, Geo. C., mc Ala. 16, sb 16, New Orleans.
Melton, Thomas Albert, mc LSU 40, sb 41, Atmore.
Murphy, Iva G., mc Univ. Ill. 34, recip. Cal. 40, Brewton. (S.)
Rawls, Vance Q., mc Univ. Louisville 29, recip. Ky. 35, Brewton.
Salley, Geo. W., mc Tenn. 03, cb Butler 03, Atmore.
Stallworth, James Patrick, mc P. & S. Atlanta 07, cb 07, Canoe.
Treherne, Alfred James, mc Louisville 32, recip. Ky. 35, Atmore.
Total 11

PHYSICIANS NOT MEMBERS

Mason, Francis Henry, mc Ala. 91, cb Monroe 91, Brewton.
McKinley, Charles F., mc Ala. 07, cb Monroe 07, Atmore.
Peavy, Julius Franklin, Jr., mc Ala. 12, sb 12, Atmore.
Tippin, Philip Henry Mulcahy, mc Ala. 94, cb 94, Brewton.
Total 4

HONORARY MEMBER

Turberville, J. S., Century, Fla.

(28) ETOWAH COUNTY

Eufaula 1873

President—Mercer Rowe ..... Gadsden
Vice-President—Alfred Carraway ..... Gadsden
Secretary-Treasurer—W. E. Meneray ..... Gadsden
County Health Officer—C. A. F. Holler ..... Gadsden

Censors—E. K. Hanby, Chairman, Attalla; J. L. Brown, Gadsden; W. L. Miller, Gadsden; J. S. Bobo, Gadsden; O. R. Grimes, Gadsden.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Anderson, William, mc Memphis Hosp. 06, sb 05, Glencoe, Rt. 2.
Anderson, William O. mc Univ. Ark. 38, recip. Ark. 39, Gadsden.
Bass, Herschel Winston, mc Johns Hopkins 06, sb 06, Gadsden.
Bass, John B., mc Johns Hopkins 38, recip. Md. 40, Gadsden.
Bilbro, Griff Wofford, mc Tulane 41, sb 42, Gadsden.
Blair, Ezekiel S., mc Univ. Tenn. 10, recip. Tenn. 42, Gadsden.
Bobo, James E., mc Tenn. 38, recip. Tenn. 40, Gadsden.
Bobo, John S., mc Vanderbilt 24, recip. Tenn. 25, Gadsden.
Brown, James M., mc Ala. 89, cb Montgomery 89, Gadsden.
Brown, Joseph Lucien, mc P. & S. Baltimore 18, sb 19, Gadsden.
Burns, Chas. R. D., mc Univ. Ark. 38, recip. Ark. 40, Alabama City.
Campbell, Henry Arthur, mc Harvard 36, sb 46, Gadsden.
Cantrell, Wilson T., mc Ky. 06, cb Marion 06, Alabama City.
Carraway, Alfred, mc Ala. 15, sb 22, Gadsden.
Clark, Ralph Denson, mc Columbia 27, Nat. Bd. Ex. 30, Gadsden.
Cross, Elias Howell, Jr., mc Vanderbilt 26, recip. Tenn. 27, Gadsden.
Faucett, DeWitt, mc P. & S. Baltimore 09, sb 09, Gadsden.
Faucett, George L., mc P. & S. Baltimore 03, cb 03, Gadsden.
Finney, James O., mc Vanderbilt 33, recip. Tenn. 36, Gadsden.
Ford, Henry Grady, mc Vanderbilt 23, sb 24, Gadsden.
Ford, Joseph Wesley, mc Okla. 31, recip. Okla. 37, Gadsden.
Ford, William F., mc Vanderbilt 94, cb 95, Gadsden, Rt. 2.
Frank, Herman W., mc Tulane 27, recip. La. 30, Gadsden.
Frantz, William E., mc Tulane 37, recip. La. 39, Gadsden.
Gillespie, J. P., Jr., mc Emory 27, recip. Ga. 29, Gadsden.
Gipson, Amos C., mc Ill. 27, sb 27, Gadsden.
Graves, Alex Wilson, mc Ala. 16, sb 16, Gadsden.
Grimes, Ormond R., mc Emory 30, sb 30, Gadsden.
Guice, Charles Lee, mc Grant 93, cb Dale 93, Gadsden.
Hanby, Elmus K., mc Ala. 02, cb St. Clair 02, Attalla.
Holladay, Joel J., Jr., mc N. Y. U. 34, sb 35, Gadsden.
Holler, Carl A. F., mc Northwestern 21, recip. Iowa 38, Gadsden.
Hughes, Miles Preston, mc Vanderbilt 06, sb 05, Gadsden.
Isbell, Euclid A., mc Tulane 33, sb 34, Gadsden.
Lawson, Chas. Lloyd, mc Univ. Tenn. 36, recip. Tenn. 39, Gadsden.
Lawson, Nettie Black, mc Univ. Tenn. 37, recip. Tenn. 40, Gadsden.
Leach, James E., mc Univ. Nashville 00, cb Blount 00, Gadsden.
Little, Edwin G., mc Ala. 05, sb 05, Gadsden.
Lonnergan, Leilas Ragan, Jr., mc Tulane 34, recip. La. 36, 6614 7th Place, N. W., Washington, D. C. (S.)
McCord, Bert, mc Northwestern 28, sb 29, Gadsden.
McCorkle, Frank W., mc Jefferson 17, sb 17, Gadsden.
McDiarmid, Thos. Scott, mc Ala. 09, sb 10, Gadsden.
McElroy, James Mahlon, mc Univ. South 01, cb Sumter 02, Attalla.
Meneray, Wilbur E., mc Tulane 37, recip. La. 43, Gadsden.
Miller, William L., mc Johns Hopkins 23, Nat. Bd. Ex. 28, Gadsden.
Morgan, J. Orville, mc Atlanta 16, sb 17, Gadsden.
Murphree, Claud L., mc Ala. 02, cb 02, Birmingham.
Nicholson, Lemuel B., mc Vanderbilt 15, sb 17, Gadsden.
Owen, Hubert R., mc Northwestern 33, recip. Mich. 35, Gadsden.
Powell, H. B., mc Ala. 10, sb 10, Gadsden.
Ralls, Arthur W., mc P. & S. Atlanta 02, cb 02, Gadsden.
Rogers, Joseph H., mc Univ. Va. 39, recip. Va. 46, Gadsden.
Rowan, Walter William, mc Atlanta 15, sb 15, Attalla.
Rowe, Mercer, mc Ala. 17, sb 17, Gadsden.
Samuel, Ira J., mc Univ. Nashville 08, sb 14, Altoona.
Savage, Henry J., mc Tulane 01, cb Conecuh 02, Gadsden.
Sheppard, John T., mc Vanderbilt 29, recip. Tenn. 33, Gadsden.
Sigrest, Otho Randolph, mc Ala. 08, sb 08, Attalla.
Silvey, Gordon E., mc Tenn. 10, sb 10, Gadsden.
Stinson, Willie E., mc Emory 31, sb 31, Gadsden.
Total 60

*See also Baldwin County.

PHYSICIANS NOT MEMBERS

Coffey, Geo. W. (col.), mc Howard 03, cb Lauderdale 06, Gadsden.
Gramling, Arthur B., mc Md. 04, cb 04, Attalla.
Stewart, James Wellington (col.), mc Meharry 44, recip. Tenn. 45, Gadsden.
Towns, John Bunyon (col.), mc Meharry 23, sb 23, Gadsden.
Total 4

(29) FAYETTE COUNTY
Selma 1879

President—J. B. Robertson — Fayette
Vice-President—H. L. Anderson — Fayette
Secretary-Treasurer—J. H. Ashcraft — Fayette
County Health Officer—J. H. Ashcraft — Fayette

Censors—A. L. Blakeney, Chairman, Newtonville; B. W. McNease, Fayette; A. C. Branyon, Fayette; J. D. Scrivner, Berry; D. H. Wright, Berry.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Anderson, Henry L., mc Tulane 39, sb 39, Fayette.
Ashcraft, James Harvey, mc Ala. 05, cb Pickens 05, Fayette.
Blakeney, A. Lanthus, mc Grant 07, cb Lamar 07, Newtonville.
Branyon, A. Curt, mc Memphis Hosp. 03, cb Lamar 03, Fayette.
McNease, Benjamin W., mc Pa. 24, sb 25, Fayette.
Robertson, John Banks, mc Tulane 34, sb 35, Fayette.
Scrivner, J. D., mc Ala. 14, sb 14, Berry.
Stewart, Guy E., mc Ala. 04, cb Walker 04, Fayette.
Wright, David H., mc Vanderbilt 08, sb 08, Berry.
Total 9

PHYSICIANS NOT MEMBERS

Young, James D., mc Memphis Hosp. 94, cb Lamar 94, Fayette. (Retired.)
Total 1

(30) FRANKLIN COUNTY
Tuscaloosa 1887

President—W. H. Spruell — Russellville
Vice-President—W. E. Wilson — Russellville
Secretary-Treasurer—N. P. Underwood — Russellville
County Health Officer—N. P. Underwood — Russellville

Censors—A. J. Underwood, Chairman, Spruce Pine; S. J. Snoddy, Russellville; Z. L. Weatherford, Red Bay; T. J. Glasgow, Russellville; W. E. Wilson, Russellville.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Burns, John Dowdy, mc Tenn. 26, sb 26, Russellville.
Clayton, Price, mc Tulane 27, sb 27, Russellville.
Frederick, Ralph H., mc Univ. Tenn. 31, recip. Tenn. 38, Phil Campbell.
Glasgow, Thomas Jefferson, mc Ala. 10, sb 10, Russellville.
Gresham, Walter Asa, mc Vanderbilt 00, cb 00, Russellville.
Snoddy, Samuel J., mc Emory 24, sb 24, Russellville.
Spruell, William Hugh, mc Tenn. 34, recip. Tenn. 35, Russellville.
Underwood, Andrew Jackson, mc Ala. 99, cb 01, Spruce Pine.
Underwood, Floyd R., mc Ala. 12, sb 12, Red Bay.
Underwood, Naomi Price, mc Grant 06, cb 06, Russellville.
Underwood, Oscar O., mc Chattanooga 04, cb 04, Phil Campbell.
Waldrep, Archie C., mc Louisville 93, cb 93, Red Bay.
Weatherford, Zadoc L., mc Tenn. 14, sb 16, Red Bay.
Wilson, William E., mc Tulane 24, recip. Tenn. 26, Russellville.
Total 14

PHYSICIANS NOT MEMBERS

McCullar, James A., mc Vanderbilt 99, cb Winston 99, Russellville.
Total 1

(31) GENEVA COUNTY
Montgomery 1888

President—C. P. Gay — Geneva
Vice-President—J. W. Beasley — Geneva
Secretary-Treasurer—E. T. Brunson — Samson
County Health Officer—G. L. Weidner* — Geneva

Censors—I. L. Johnston, Chairman, Samson; H. K. Tippins, Geneva; C. P. Gay, Geneva; J. W. Beasley, Geneva; H. C. Riley, Coffee Springs.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Beasley, James W., mc Ala. 96, cb Pike 96, Geneva.
Brunson, Emmett T., mc Emory 21, sb 21, Samson.
Gay, Coleman P., mc Atlanta Southern 97, cb Randolph 97, Geneva.
Johnston, Ira L., mc Memphis Hosp. 03, cb Pike 03, Samson.
Riley, Henry Clayton, mc Memphis Hosp. 03, cb Henry 03, Coffee Springs.
Stephens, Dudley D., mc Ala. 95, cb Dale 95, Slocomb.
Tankersley, Ernest, mc Louisville 07, cb Crenshaw 07, Samson.
Tippins, Henry K., mc Chicago P. & S. 08, sb 08, Geneva.
Tippins, James R., mc Chicago P. & S. 12, sb 14, Hartford.
Vaughan, Angus Edwin, mc Louisville 05, cb 05, Geneva, Rt. 2.
Williams, Keller Bell, mc Univ. South 07, sb 08, Hartford.
Windham, Samuel W., mc Washington Univ. 38, recip. Mo. 40, Geneva. (S.)
Total 12

PHYSICIANS NOT MEMBERS

Fleming, John C., mc Ala. 91, cb 95, Hartford.
Townsend, Alfred L., mc Univ. Nashville 99, cb Pike 99, Hartford.
Total 2

(32) GREENE COUNTY
Selma 1879

President—J. P. Smith — Eutaw
Vice-President—D. H. Trice — Boligee
Secretary-Treasurer—J. D. Smith — Eutaw
County Health Officer—S. J. Williams† — Eutaw

Censors—D. H. Trice, Chairman, Boligee; H. B. Klie, Forkland; J. P. Smith, Eutaw; R. S. Lucius, Eutaw; J. D. Smith, Eutaw.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Klie, H. B., mc Tulane 00, cb Marengo 00, Forkland.
Lucius, Richard Spurgeon, mc P. & S. Atlanta 04, cb 04, Eutaw.
Smith, James Donald, mc N. Y. Univ. 36, recip. N. Y. 38, Eutaw.
Smith, Joe P., mc Emory 34, recip. Miss. 36, Eutaw.
Trice, Daniel Hall, mc Louisville 03, cb Choctaw 03, Boligee.
Weissinger, William J., mc Tulane 11, sb 11, Eutaw.
Total 6

*See also Coffee County.
†See also Sumter County.

PHYSICIANS NOT MEMBERS

Legare, Julien Kent, mc Univ. N. Y. 86, cb 87, Forkland.
Moore, George Amos, mc Ala. 90, cb Wilcox 90, Eutaw.
Thetford, Samuel Lewis, mc Tulane 06, sb Louisiana 06, Boligee.
Total 3

(33) HALE COUNTY

Montgomery 1875

President—E. T. Norman ..... Greensboro
Vice-President—I. H. Griffin ..... Moundville
Secretary-Treasurer—I. N. Jones ..... Greensboro
County Health Officer—I. N. Jones ..... Greensboro

Censors—T. J. Anderson, Chairman; Greensboro; E. T. Norman, Greensboro; I. H. Griffin, Moundville; T. P. Abernathy, Moundville; D. R. Ramey, Jr., Greensboro.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Abernathy, Thomas Pennie, mc Memphis Hosp. 99, cb 99, Moundville.
Allison, Grady M., mc Univ. Tenn. 10, recip. Tenn. 42, Gallion.
Anderson, Thos. J., mc Tulane 22, sb 22, Greensboro.
Griffin, Irvin H., mc Tulane 34, sb 35, Moundville.
Jones, Isaac N., mc Ala. 09, sb 10, Greensboro.
Norman, Eldridge T., mc Emory 26, sb 26, Greensboro.
Ramey, Daniel R., Jr., mc Tenn. 36, recip. Tenn. 37, Greensboro.
Total 7

PHYSICIANS NOT MEMBERS

None.

(34) HENRY COUNTY

Montgomery 1883

President—C. T. Jones ..... Newville
Vice-President—C. T. Martin ..... Headland
Secretary-Treasurer—T. J. Floyd ..... Abbeville
County Health Officer—T. J. Floyd (Act.) ..... Abbeville

Censors—L. P. Shell, Chairman; Abbeville; T. J. Floyd, Abbeville; C. T. Jones, Newville; C. T. Martin, Headland; S. L. Burdeshaw, Headland.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Burdeshaw, Shelby L., mc Univ. Nashville 08, sb 08, Headland.
Floyd, Thomas J., mc Tulane 07, cb Houston 07, Abbeville.
Jones, Carl T., mc Ala. 17, sb 17, Newville.
Martin, Carl T., mc Univ. Ga. 26, recip. Ga. 36, Headland.
Scott, Marvin, mc Ala. 05, cb 05, Headland.
Shell, James Robert, mc Tenn. 42, recip. Tenn. 43, Abbeville. (S.)
Shell, L. P., mc Vanderbilt 05, cb Butler 06, Abbeville.
Whigham, Arthur L., mc Ala. 10, sb 11, Newville.
Total 8

PHYSICIANS NOT MEMBERS

Scott, Walter, mc Atlanta 10, sb 14, Headland.
Total 1

(35) HOUSTON COUNTY

Talladega 1903

President—Paul Flowers ..... Dothan
Vice-President—T. B. Woods ..... Dothan
Secretary-Treasurer—W. T. Burkett ..... Dothan
County Health Officer—W. T. Burkett ..... Dothan

Censors—I. C. Bates, Chairman, Dothan; W. H. Turner, Dothan; R. D. Crawford, Dothan; S. G. Latiolais, Dothan; F. G. Granger, Ashford.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Allen, Joseph West, mc Tulane 31, recip. La. 36, Dothan.
Andress, David G., mc Chattanooga 04, cb Cullman 04, Madrid.
Bates, Irby Clyde, mc Ala. 11, sb 11, Dothan.
Burdeshaw, Henry B., mc Tulane 16, sb 19, Dothan.
Burkett, Wyatt Thomas, mc Tulane 09, sb 17, Dothan.
Campbell, James A., mc Okla. 15, sb 20, Dothan.
Cannady, Nicholas B., mc Jefferson 12, recip. N. C. 23, Dothan.
Chalker, Benjamin C., mc Georgia Eclectic 97, cb Geneva 97, Dothan.
Crawford, Robert D., Jr., mc Emory 30, pro forma USN 32, Dothan.
Davie, Mercer Stillwell, mc Tulane 09, cb 09, Dothan.
Ellis, John Thomas, mc Emory 16, sb 17, Dothan.
Flowers, James H., mc Baylor 05, cb 05, Newton, RFD.
Flowers, Paul Rutledge, mc Emory 39, recip. Ind. 43, Dothan.
Fowler, James T., mc S. C. 83, cb Henry 83, 2845 Carlisle Rd., Birmingham.
Granger, Frank G., mc Atlanta P. & S. 12, sb 12, Ashford.
Haisten, Douglas C., mc Vanderbilt 28, sb 29, Dothan.
Hicks, Dorman Marvin, mc Louisville 06, cb Pike 06, Cottonwood.
Hilson, Lewis, mc P. & S. Atlanta 09, sb 09, Dothan.
Keyton, J. Arthur, mc Tulane 16, sb 16, Dothan.
Latiolais, Sydney G., mc Tenn. 31, recip. Tenn. 35, Dothan.
Mazyck, Arthur, mc Univ. Va. 31, recip. Va. 34, Dothan.
McFatter, Theron K., mc Tulane 29, recip. La. 31, Dothan.
Moody, Earl F., mc Tulane 03, sb 03, Dothan.
Rowe, Mason C., mc Va. 35, recip. Va. 39, Martinsville, Va.
Thacker, Vincent J., mc Tulane 25, recip. La. 27, Dothan.
Turner, Wilson H., mc Northwestern 28, recip. Miss. 31, Dothan.
Wilkinson, John G., mc Tenn. 02, cb Tuscaloosa 02, Cottonwood.
Woods, Thomas B., mc Tulane 33, sb 33, Dothan.
Yarbrough, John Fletcher, mc Atlanta 92, cb Henry 92, Montgomery.
Total 29

PHYSICIANS NOT MEMBERS

Dasher, John M. (col.), mc Meharry 29, recip. Ga. 40, Dothan.
Lanford, Walter B., mc Ala. 06, cb Crenshaw 06, Columbia.
Ryalls, William Mann, mc Atlanta 87, cb Henry 97, Ashford.
Total 3

(36) JACKSON COUNTY

Mobile 1882

President—S. P. Hall ..... Scottsboro
Vice-President—E. A. Browder ..... Stevenson
Secretary-Treasurer—E. Julian Hodges ..... Scottsboro
County Health Officer—Lee Weathington* ..... Scottsboro

Censors—M. H. Lynch, Chairman, Scottsboro; G. E. Nye, Scottsboro; E. A. Browder, Stevenson; Rayford Hodges, Scottsboro; E. Julian Hodges, Scottsboro.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Browder, Ernest A., mc Tenn. 36, recip. Tenn. 37, Stevenson.
Hall, Samuel P., Jr., mc Univ. Ga. 34, recip. Ga. 36, Scottsboro.

*See also Marshall County.

Hartung, Carl F., Jr., mc Grant 06, cb Cullman 06, Bridgeport.
Hodges, E. Julian, mc Emory 34, sb 34, Scottsboro.
Hodges, Rayford, mc Ala. 15, sb 15, Scottsboro.
James, Samuel H., mc Chattanooga 06, cb 06, Veterans' Hospital, Outwood, Ky.
Lynch, M. H., mc S. C. 28, recip. S. C. 30, Scottsboro.
Nye, George E., mc Chattanooga 06, cb DeKalb 06, Scottsboro.
Vandiver, Horace G., mc Vanderbilt 15, sb 15, Princeton.
Williams, William C., mc Ala. 00, cb Mobile 00, Bridgeport.
Zimmerman, Albert Sidney, mc Univ. South 97, cb Lawrence 98, Rt. 3, Prattville.
Total 11

PHYSICIANS NOT MEMBERS

Breeland, E. E., mc Barnes 03, cb Baldwin 05, Section.
Total 1

(37) JEFFERSON COUNTY
Birmingham 1877

President—Joe M. Donald ..... Birmingham
Vice-President—W. A. Clyde ..... Birmingham
Secretary-Treasurer—W. E. Coleman ..... Birmingham
County Health Officer—G. A. Denison ..... Birmingham

Censors—A. A. Walker, Chairman, Birmingham; J. W. Simpson, Birmingham; S. W. Collier, Birmingham; Ivan Berrey, Birmingham; Edward O'Connell, Birmingham.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Akin, John M., mc Emory 25, sb 26, 1117 W. 8th Ave., Birmingham.
Alford, Othar T., mc Univ. Tenn. 29, recip. Tenn. 37, 2703½ N. 30th St., Birmingham.
Allgood, Homer Wilson, mc Ala. 12, sb 12, Fairfield.
Anderson, Martin N., mc Univ. Tenn. 41, sb 42, 1601 N. 25th St., Birmingham.
Andrews, Neal L., mc Tulane 30, recip. La. 31, 2121 Highland Ave., Birmingham.
Anthony, J. C., mc Ala. 09, sb 09, Massey Bldg., Birmingham.
Applebaum, Samuel L., mc Univ. Tenn. 36, recip. Tenn. 39, Woodward Bldg., Birmingham.
Argo, John R., mc Vanderbilt 23, sb 23, Tarrant.
Armour, William S., mc Atlanta P. & S. 13, recip. Ga. 20, 900 S. 20th St., Birmingham.
Ashworth, Robert F., mc Louisville Hosp. 03, sb 03, 203 Acadia Terrace, Fairfield.
Atwood, Abner Lowe, mc Univ. Nashville 07, cb Franklin 07, Woodward Bldg., Birmingham.
Baker, Roger Denio, mc Harvard 28, NBE 45, Jefferson Hospital, Birmingham.
Barclift, William C., Jr., mc Tenn. 34, recip. Tenn. 37, 1922 S. 10th Ave., Birmingham.
Barelare, Bruno, Jr., mc Johns Hopkins 38, recip. Ind. 46, Med. Arts Bldg., Birmingham.
Barnes, Rhett G., mc Tulane 38, recip. La. 40, South Highlands Inf., Birmingham.
Barron, James Mathew, mc Tulane 41, sb 42, Employees' Hospital, Fairfield.
Batson, Walter P., mc Tulane 42, sb 43, Employees' Hosp., Fairfield.
Becton, James Alvis, mc Vanderbilt 18, recip. Tenn 25, Box 2896, Woodlawn, Birmingham.
Beddow, William Henry, mc Tulane 15, sb 15, Med. Arts Bldg., Birmingham.
Benson, Ralph C., mc Johns Hopkins 36, recip. Ind. 41, Medical Arts Building, Birmingham. (S.)
Berrey, Ivan C., mc Rush 25, recip. Ill. 28, 2021 Sixth Avenue North, Birmingham.
Berrey, Ruth R., mc Tulane 28, recip. La. 29, 2021 Sixth Avenue North, Birmingham.
Berry, Robert A., mc S. C. 27, recip. S. C. 32, Woodward Bldg., Birmingham.
Berry, Wm. Thompson, mc Vanderbilt 99, cb 99, Empire Bldg., Birmingham.
Best, Ralph Lee, mc Univ. Ark. 37 recip Ark. 46, Ramsey-McCormack Bldg., Bessemer.
Bishop, Brooks, mc Emory 41, sb 42, Margaret.
Black, John W., mc Ala. 09, sb 10, 528 19th St., Ensley, Birmingham.
Blackburn, Cecil H. mc Wash. Univ. 41, recip Mo. 46, South Highlands Inf., Birmingham.
Blank, William H., mc Rush 38, sb 38, Woodward Bldg., Birmingham.
Blanton, Russell, mc Rush 31, sb 31, 2121 Highland Ave., Birmingham.
Blue, James Howard, mc Ala. 13, sb 13, Bessemer.
Boggs, Lloyd K., mc Univ. Ga. 24, recip. Ga. 41, 516 N. 21st Street, Birmingham.
Bohorfoush, Joseph G., mc Vanderbilt 43, recip. Tenn. 43, Jefferson Tuberculosis San., Birmingham.
Botta, Louis P., mc Rush 26, recip. Ill. 29, 1917½ Ave. E., Ensley, Birmingham.
Boulware, Thos. M., mc Washington Univ. 26, recip. Tenn. 29, 1601 N. 25th St., Birmingham.
Box, Thomas T., mc Chicago M. & S. 16, recip. Miss. 37, Ensley Emergency Hosp., Ensley, Birmingham.
Bradford, Duke C., mc Ala. 14, sb 14, 1509 N. 34th Street, Birmingham.
Brannon, Robert M., mc Tulane 22, sb 23, 2121 Highland Ave., Birmingham.
Branscomb, Louise, mc Johns Hopkins 28, Nat. Ex. Bd. 31, Woodward Bldg., Birmingham.
Brice, J. Arthur, mc Ala. 13, sb 13, Tarrant.
Bristow, Bernard T., mc Tenn. 24, recip. Tenn. 27, Bessemer.
Brown, Hunter M. mc Tulane 34, recip. La. 38, 1922 10th Avenue S., Birmingham
Brown, Morgan W., mc Tulane 27, recip. La. 28, 816 S. W. 6th Street, Birmingham.
Brownlee, Leslie G., mc Okla. 12, sb 16, Protective Life Bldg., Birmingham.
Burns, William Arthur, mc Memphis 91, cb Lamar 91, Martin Bldg., Birmingham.
Burrett, John B., mc New York 37, NBE 46, 918 S. 20th Street, Birmingham.
Bush, J. D., Jr., mc Rush 36, sb 36, Med. Col. of Ala., Birmingham.
Caldwell, Hale Albert, mc Ala. 18, sb 18, 301 S. 41st St., Birmingham.
Callaway, Raymond R., mc Ill. 27, sb 27, Empire Bldg., Birmingham.
Carmichael, John Leslie, mc Tulane 24, sb 25, 2011 S. 9th Ave., Birmingham.
Carmichael, Josiah N., mc Ala. 13, sb 13, Fairfield.
Carmichael, William M., mc Univ. Nashville 09, sb 07, Fairfield.
Carpenter, Burwell S., mc Ala. 05, cb Pickens 05, Fairfield.
Carraway, Benjamin M., mc LSU 35, sb 35, 1601 N. 25th St., Birmingham.
Carraway, Chas. Newton, mc Ala. 02, cb 02, 1601 N. 25th St., Birmingham.
Carter, Henry Rose, Jr., mc Pa. 08, sb 20, Woodward Bldg., Birmingham.
Carter, Melson Barfield, mc Tulane 21, sb 21, Woodward Bldg., Birmingham.
Casey, Albert Eugene, mc St. Louis Univ. 27, recip. Mo. 42, Jefferson Hospital, Birmingham.
Cermak, Emil C., mc Creighton 33, recip. Neb. 36, Trussville.
Chandler, James Robert, mc Ala. 09, sb 11, Bessemer.
Chapman, Jerome Cochran, mc Tulane 23, recip. La. 26, 2160 Highland Avenue, Birmingham.
Cheatham, Thomas Alfred, mc Jefferson 09, sb 10, Frank Nelson Bldg., Birmingham.
Chenoweth Beach, mc Johns Hopkins 39, sb 39, Med. Col. Ala., Birmingham.

Cherry, Alfred, mc Univ. Buffalo 36, recip. Ohio 38, Med. Arts Bldg., Birmingham.
Chipps, H. Davis, mc Univ. Louisville 34, recip. Ky. 42, Jefferson Hospital, Birmingham. (S.)
Clayton, Edward C., mc Ala. 09, sb 09, Leeds.
Clements, F. H., mc Ala. 17, pro forma USN 19, Med. Arts Bldg., Birmingham.
Cloud, Robert Emmett, mc Tulane 10, sb 09, Ensley, Birmingham.
Clyde, Wallace A., mc Tulane 26, sb 26, 900 S. 20th St., Birmingham.
Coleman, Grover Cleveland, mc Ala. 11, sb 12, 5049 Parkway, Fairfield.
Coleman, William E., Jr., mc George Washington 34, sb 35, 2121 Highland Avenue, Birmingham.
Collier, Sid. W., mc Univ. Minn. 22, recip. Minn. 24, 900 S. 20th St., Birmingham.
Collins, Chalmers D., mc Louisville 30, sb 30, Massey Bldg., Birmingham.
Collins, Thomas A., mc Ala. 12, sb 13, Med. Arts Bldg., Birmingham.
Colquitt, Chas. J., mc Emory 23, sb 23, Bessemer.
Comer, Robert T., mc Johns Hopkins 01, cb Bullock 01, Comer Bldg., Birmingham.
Compton, Wheeler Wilkinson, mc Vanderbilt 03, cb 03, Fairfield.
Constantine, Kosciusco Walker, mc Johns Hopkins 05, cb 05, 229 Barton Ave., Palm Peach, Fla.
Conwell, Hugh Earle, mc Ala. 15, sb 15, 216 Med. Arts Building, Birmingham.
Cooley, Beamon S., mc Tenn. 12, sb 12, Woodward Building, Birmingham.
Copeland, Miles A., mc Ala. 03, cb 03, Clark Bldg., Birmingham.
Cornwell, Robert A., mc Jefferson 39, recip. Pa. 41, 1131 N. 28th Street, Birmingham. (S.)
Coston, Ralls M., mc Okla. 29, recip. Okla. 30, 2012 10th Avenue S., Birmingham.
Cothran, Robert M., mc Johns Hopkins 26, recip. Md. 41, 1023 S. 20th St., Birmingham.
Coyle, Daniel J., mc Rush 28, sb 30, Woodward Bldg., Birmingham.
Crelly, Harry C., mc Ala. 02, cb Washington 02, Watts Bldg., Birmingham.
Cunningham, Joseph Anthony, mc Univ. Freiburg 35, NBE 42, Medical Arts Bldg., Birmingham
Cunningham, William Alva, mc Univ. Toronto 23, recip. N. Y. 43, 103 N. 55th St., Birmingham.
Dabney, Marye Y., mc Johns Hopkins 12, sb 12, 2300 Highland Avenue, Birmingham.
Dale, Seabron C., mc Tulane 35, recip. Miss. 46, 811 S. 20th St., Birmingham.
Daly, Edgar Wm., mc Tulane 08, sb 10, 627 Woodward Bldg., Birmingham.
Darden, Wm. H., mc Duke 32, recip. Minn. 37, T. C. I. Disp., Pratt City, Birmingham.
Davenport, L. Orton, mc Western Reserve 09, recip. Col. 26, Birmingham, Rt. 2.
Davidson, Alton W., mc Emory 29, sb 29, Realty Bldg., Bessemer.
Davidson, Marion Tabb, mc Univ. Cincinnati 11, sb 12, Frank Nelson Bldg., Birmingham.
Davis, Julian Walker, mc Tenn. 37, recip. Tenn. 40, Norwood Hospital, Birmingham.
Dean, Leon, mc Ala. 13, sb 14, Ensley, Birmingham.
Deaver, Clyde Wilson, mc Vanderbilt 17, recip. Tenn. 19, Empire Bldg., Birmingham.
Deaver, Wilson T., mc Ala. 15, sb 16, Adamsville, Rt. 2.
Dedman, James E., mc Univ. Tenn. 90, cb 98, Betterton, Md.
Denison, Geo A., mc Baylor 30, sb 30, Box 2591, Birmingham.
Denson, Fred Hammond, mc Ala. 12, sb 13, Rt. 4, Box 883, Bessemer.
Donald, Charles J., mc Tulane 36, sb 36, 918 S. 20th St., Birmingham.
Donald, Dan Caldwell, mc Tulane 09, sb 11, 918 S. 20th St., Birmingham.
Donald, Joseph M., mc Tulane 25, recip. Minn. 32, 918 S. 20th St., Birmingham.
Donald, Thomas C., mc Ala. 97, cb Butler 97, 918 S. 20th St., Birmingham.
Donnelly, Charles Augustus, mc Ohio 08, sb 10, Watts Bldg., Birmingham.
Douglas, Gilbert F., Jr., mc Vanderbilt 40, sb 41, 1111 S. 20th St., Birmingham. (S.)
Douglas, Gilbert F., mc Ala. 10, sb 11, 1111 S. 20th St., Birmingham.
Douglass, John, mc Ala. 00, cb Lauderdale 01, Comer Bldg., Birmingham.
Dowling, Judson Davie, mc Ala. 11, sb 11, 4322 Lyons View Pike, Knoxville, Tenn.
Drennen, Earle, mc P. & S. N. Y. 06, sb 05, 2160 Highland Ave., Birmingham.
Durick, Stephen A., mc LSU 33, sb 34, Realty Bldg., Bessemer.
Edwards, Elwart H., mc Univ. Tenn. 39, recip. Tenn. 41, Leeds.
Edwards, Jesse E. H., mc Univ. Nashville 08, sb 12, McCalla.
Elgin, C. E., mc Univ. Nashville 05, sb 07, Praco.
Elkourie, Leo A., mc Rush 29, sb 31, 1625 South 12th Avenue, Birmingham.
Elliott, Hiram R., Jr., mc Univ. Tenn. 38, recip. Miss. 43, Employees' Hosp., Fairfield.
Falletta, Pasqualino T., mc Tulane 26, sb 26, Massey Bldg., Birmingham.
Farmer, H. R., mc Tulane 22, sb 22, Fairfield.
Farrar, William C., mc Ala. 08, sb 08, Box 2866, Woodlawn Station, Birmingham.
Ferguson, Hal, mc Univ. Cincinnati, 41, recip. Ohio 46, Employees' Hosp., Fairfield.
Ferry, James A., mc Tulane 32, sb 32, Medical Arts Bldg., Birmingham.
Field, Charles H., mc Univ. Ga. 41, recip. Ga. 46, Woodward Bldg., Birmingham.
Fisher, Gilbert E., mc Univ. Mich. 36, recip. Mich. 40, Medical Arts Building, Birmingham.
Fonville, Wm. Drakeford, mc Tulane 04, cb Wilcox 05, 929 S. 20th St., Birmingham.
Ford, C. H., mc Emory 27, sb 27, Med. Arts Bldg., Birmingham.
Fox, Bertram Arthur, mc Ala. 96, cb 96, Chamber of Commerce Bldg., Birmingham.
Fox, Carl Alexander, mc Tulane 00, cb 00, Brown-Marx Bldg., Birmingham.
Friedman, Louis L., mc Univ. Ark. 41, recip. Ark. 45, Jefferson-Hillman Hosp., Birmingham.
Gaines, Cecil Dean, mc Ala. 11, sb 11, Woodward Bldg., Birmingham.
Gaines, H. F., mc Emory 22, sb 23, 5060 Parkway, Fairfield.
Galbraith, James Garber, mc St. Louis Univ. 38, NBE 46, 1117 S. 22nd St., Birmingham.
Garber, James R., mc Jefferson 13, sb 13, 1117 S. 22nd St., Birmingham.
Garlington, William H., mc Louisville 21, recip. Ky. 25, 5353 N. First Ave., Birmingham.
Garmon, Clyde N., mc Ala. 14, sb 15, Rt. 2, Bessemer.
Garrison, John Earl, mc Ala. 04, cb Walker 04, Woodward Bldg., Birmingham.
Gehrken, Henry S., mc Ga. 09, recip. Ga. 29, 1601 N. 25th St., Birmingham.
Gewin, Edwin Evans, mc Tenn. 29, recip. Tenn. 45, Med. Arts Bldg., Birmingham.
Gillespy, Robert R., mc Tulane 22, sb 22, 4403 Overland Road, Birmingham (S.)
Givhan, Edgar G., Jr., mc Jefferson 28, sb 29, Med. Arts Bldg., Birmingham.
Glasgow, Richard D. mc Emory 40, sb 40, Employees' Hospital, Fairfield.
Glasgow, Robert S., mc Univ. South 00, cb Shelby 00, Adamsville.

Glenn, E. Byron, mc Jefferson 31, recip. N. C. 46, Med. Arts Bldg., Birmingham.
Goldner, Harry, mc Univ. Pa. 37, sb 37, 2121 Highland Avenue, Birmingham.
Goldstein, Ben, mc Emory 22, sb 22, 2160 Highland Ave., Birmingham.
Goodall, Albert G., mc Vanderbilt 26, recip. Tenn. 27, Martin Bldg., Birmingham.
Goodall, Robert G., mc Univ. Tenn. 40, recip. Tenn. 45, Employees' Hosp., Fairfield.
Gordon, George R., mc Jefferson 35, recip. Pa. 40, 2121 Highland Avenue, Birmingham. (S.)
Graham, George S., Jr., mc Harvard 41, sb 42, 1023 S. 20th St., Birmingham.
Grasberger, Joseph C., mc Hahnemann 37, recip. Pa. 40, 630 N. 19th St., Bessemer. (S.)
Green, Albert H., mc Tenn. 28, recip. Tenn. 30, Woodward Bldg., Birmingham.
Green, Elbert Paul, mc Ala. 11, sb 12, 1200 Graymont Ave., Birmingham.
Green, Roy C., mc Tulane 30, sb 30, 5357 1st Avenue North, Birmingham.
Greene, Gilbert B., mc Tulane 32, sb 34, 516 N. 21st St., Birmingham.
Griffin, George W., mc LSU 38, recip. La. 39, 2501 N. 16th Ave., Birmingham.
Guthrie, Robert F., mc Emory 34, recip. Ga. 37, Woodward Bldg., Birmingham.
Habeeb, Alfred, mc Univ. Tenn. 38, recip. Miss. 41, Employees' Hospital, Fairfield.
Hairston, Wm. George, mc Md. 04, sb 04, 1504 N. 33rd Ave., Birmingham.
Hamrick, Robert A., mc Johns Hopkins 23, recip. Md. 29, Employees' Hospital, Birmingham.
Hamrick, Robert Hampton, mc Atlanta 95, cb Blount 96, Watts Bldg., Birmingham.
Hankins, Gordon M., mc Tulane 36, sb 36, Employees' Hospital, Fairfield.
Hardy, Walter B., mc Tulane 12, sb 12, 2121 Highland Ave., Birmingham.
Hargis, Albert S., Jr., mc Tulane 34, sb 34, Ensley, Birmingham.
Hargis, Estes H., mc Pa. 21, recip. Pa. 27, 1131 N. 28th St., Birmingham.
Harris, Arthur Buckner, mc Univ. Va. 02, cb 03, Med. Arts Bldg., Birmingham.
Harris, Edward A., mc Wash. Univ. 37, sb 37, Employees' Hosp., Fairfield.
Harris, Esau A., mc Univ. South 98, cb St. Clair 98, 221 Realty Building, Bessemer.
Harris, Farley W., mc Ala. 09, sb 10, Woodward Bldg., Birmingham.
Harris, Herbert A., mc Ala. 14, sb 14, Woodward Bldg., Birmingham.
Harris, Homer Persius (Blue), mc Tulane 21, sb 21, Bessemer.
Harris, Reuben R., mc Wash. Univ. 38, sb 38, TCI Dispensary, Pratt City, Birmingham.
Harris, Seale, mc Univ. Va. 94, sb 94, 2234 Highland Ave., Birmingham.
Harrison, William Groce, mc Md. 92, cb Talladega 92, 4142 Cliff Road, Birmingham.
Haun, Chas. A., mc Vanderbilt 23, recip. Tenn. 25, 2715 Ensley Ave., Birmingham.
Haynes, Walter G., mc Univ. Ill. 38, recip. Ill. 45, Comer Bldg., Birmingham.
Hays, J. Howard, mc Ala. 14, sb 14, Comer Bldg., Birmingham.
Heacock, Joseph Davis, mc Tulane 92, cb 92, 2021 6th Ave. N., Birmingham.
Heflin, Wyatt, mc Jefferson 84, cb Randolph 85, 3216 Cliff Rd., Birmingham.
Henderson, Hiliary Herbert, Jr., mc Tulane 38, recip. La. 42, 2160 Highland Ave., Birmingham.
Hightower, Russell G., mc Rush 36, sb 36, Employees Hospital, Fairfield. (S.)
Hillhouse, John L., mc Vanderbilt 29, recip. Tenn. 30, Med. Arts Bldg., Birmingham.
Hirsh, Joseph E., mc Pa. 22, sb 23, Med. Arts Bldg., Birmingham.
Hogan, Edgar Poe, mc Ala. 09, sb 08, 920 S. 20th St., Birmingham.
Hogan, George Archibald, mc Ala. 96, cb 96, 920 S. 20th St.. Birmingham.
Hogan, Marshall D., mc Rush 27, sb 27, 311 W. Main St., Boonton, N. J.
Hogan, Robert Elias, mc Ala. 01, cb Bibb 01, Ensley, Birmingham.
Horn, Joseph R., Jr., mc Tulane 23, recip. La. 24, Bessemer.
Horn, Samuel Wilson, mc Emory 16, sb 17, Bessemer.
Howe, Charles D., mc Univ. Tenn. 40, recip. Tenn. 42, 1601 N. 25th St., Birmingham.
Hubbard, Lex Walter, mc Jefferson 11, sb 14, Tarrant.
Hughes, Brady A., mc Jefferson 27, recip. Pa. 36, Woodward Bldg., Birmingham.
Hutto, A. S., mc Ala. 15, sb 15, Pinson.
Irwin, Winston H., mc Univ. Okla. 37, sb 38, 1601 N. 25th St., Birmingham.
Issos, Demetrius N., mc Vanderbilt 27, sb 28, Woodward Bldg., Birmingham.
Jackson, Harry Lee, mc Ala. 18, sb 18, Empire Bldg., Birmingham.
Jenkins, John F., mc Ala. 01, cb Mobile 01, 3536 27th Street N., Birmingham.
Jenkins, John F., Jr., mc Tulane 31, sb 31, 2300 Highland Avenue, Birmingham.
Johns, Lemuel J., mc Ala. 14, sb 14, Massey Bldg., Birmingham.
Johnston, Hardee, mc Univ. Va. 95, cb 96, 2121 Highland Ave., Birmingham.
Jones, Walter C., mc Northwestern 02, sb 18, Rt. 2, Box 195A, Birmingham.
Jones, W. Nicholson, mc Tulane 27, recip. La. 29, Woodward Bldg., Birmingham.
Jordan, Jno. Sheffield, mc Emory 25, sb 25, 5357 N. First Ave., Birmingham.
Jordan, William Mudd, mc P. & S. N. Y. 95, cb 95, 2772 Hanover Circle, Birmingham.
Joseph, Kellie N., mc S. C. 29, recip. Ga. 35, Woodward Bldg., Birmingham.
Justice, John D., mc Emory 33, recip. Ga. 36, 3616 Bessemer Rd., Birmingham.
Kahn, Sigmond A., mc Tulane 29, recip. La. 31, 2160 Highland Ave., Birmingham.
Kay, Frank A., mc Emory 22, sb 22, Med. Arts Bldg. Birmingham.
Kelley, Ray Hansen, mc Northwestern 38, recip. Ill. 43, E. I. du Pont de Nemours Co., Pompton Lake, N. J.
Kennedy, Frank F., mc Tulane 31, recip. La. 35, 2012 S. 10th Avenue, Birmingham.
Kennedy, Hughes, Jr., mc Harvard 21, sb 23, Highland Plaza Apts., Birmingham.
Kesmodel, Karl F., mc Tulane 16, sb 16, Med. Arts Bldg., Birmingham.
Kimbrough, Ralph M., mc Chicago M. & S. 17, recip. Ill. 23, Powderly.
Kincannon, Leroy T., mc Va. 20, sb 21, Woodward Bldg., Birmingham.
Kinkead, Kyle Johnston, mc Tulane 15, sb 17, Empire Bldg., Birmingham.
Kirby, Lelias E., mc Emory 26, sb 26, 5357 N. First Ave., Birmingham.
Knight, J. Hurley, mc Emory 31, sb 31, 20 N. 55th Place, Birmingham.
Kracke, Roy Rachford, mc Rush 27, recip. Ga. 45, Jefferson Hospital, Birmingham.
Lamar, Clifford L., mc Harvard 20, sb 20, 1922 10th Ave. S., Birmingham.
Langdon, Harold R., mc Queen's Univ. 38, recip. N. Y. 40, 2236 Bessemer Rd., Birmingham.
Lavender, Claude B., mc Memphis Hosp., 08, sb 08, Employees' Hosp., Fairfield.

Leland, Joseph, mc Tulane 04, cb Tuscaloosa 04, 2840 Fairway Drive, Birmingham.
Lester, Belford S., mc Vanderbilt 07, sb 08, Med. Arts Bldg., Birmingham.
Lewis, Charles Franklin, mc Tulane 21, sb 22, Woodward Bldg., Birmingham.
Lewis, Herbert J., mc Ala. 15, sb 16, 1601 Empire Bldg., Birmingham.
Lewis, Thomas Knight, mc Vanderbilt 12, sb 13, 935 S. 20th St., Birmingham.
Linder, Browne G., mc Emory 27, sb 27, Med. Arts Building, Birmingham.
Linder, Hugh M. C., mc Vanderbilt 32, recip. Tenn. 36, 2021 6th Ave. N., Birmingham.
Lineberry, Ellis D., mc Univ. Va. 26, recip. Va. 31, 1601 N. 25th St., Birmingham.
Linn, Julius E., mc Emory 28, recip. Ga. 30, Med. Arts Bldg., Birmingham.
Little, Samuel C., mc Emory 39, recip. Ga. 45, 2167 Highland Ave., Birmingham.
Littlejohn, Wilmot Shipp, mc Emory 21, recip. Ga. 30, 2300 Highland Ave., Birmingham.
Livingston, James A., mc Pa. 11, sb 19, Woodward Bldg., Birmingham.
Locke, W. W., mc Tulane 26, sb 26, Empire Bldg., Birmingham.
Long, William Walker, mc Tenn. 96, sb 03, Leeds Rd., Birmingham.
Love, John T., mc Ala. 00, cb Morgan 00, 3619 So. Redmont Rd., Birmingham.
Lovelady, Robert G., mc Ala. 14, sb 15, 5500 1st Ave. N., Birmingham.
Lovell, Durward L., mc Duke Univ. 37, NBE 42. Masonic Bldg., W. E., Birmingham.
Lull, Cabot, mc Michigan 99, cb Elmore 01, Med. Arts Bldg., Birmingham.
Lupton, Frank Allemang, mc Johns Hopkins 99, cb 00, 2105 S. 15th Ave., Birmingham.
MacIntyre, Dugal S., mc Univ. Mich. 36, recip. Mich. 46, Med. Arts Bldg., Birmingham.
MacQueen, James W., mc Rush 25, recip. Ill. 27, Hillman Hospital, Birmingham.
Magruder, Thomas V., mc Tulane 10, sb 11, Med. Arts Bldg., Birmingham.
Martin, Wade A., mc Ala. 08, sb 10, Rt. 4, Box 286A, Birmingham.
Martin, Wm. B., mc Ind. 28, recip. Ind. 29, Warrior.
Martz, Harry, mc N. Y. Univ. 33, recip. N. Y. 39, 2121 Highland Ave., Birmingham.
Mason, James Monroe, mc Tulane 99, cb 99, Med. Arts Bldg., Birmingham.
Mason, J. M., III, mc Johns Hopkins 34, recip. Md. 45, Medical Arts Bldg., Birmingham.
May, William Lucius, mc Memphis 97, sb 97, Powhatan.
McBurney, Ralph, mc Rush 29, sb 30, 1017 S. 32nd St., Birmingham.
McCarn, Oscar C., Jr., mc Tulane 40, sb 40, 2501 N. 16th Avenue, Birmingham.
McCullough, George C., mc Tulane 34, sb 35, Jacksonville. N. C. (S.)
McDaniel, Joe Crosby, mc Ala. 12, sb 13, Frank Nelson Bldg., Birmingham.
McDowell, James F., mc Pa. 34, sb 35, 2167 Highland Avenue, Birmingham.
McEniry, Edgar P., mc Emory 18, sb 19, Dolomite.
McGahey, Robert Goodloe, mc Ala. 12, sb 12, Woodward Bldg., Birmingham.
McGahey, Travis P., mc Tulane 23, sb 24, Woodward Bldg., Birmingham.
McGehee, Henry T., mc Ala. 04, sb Tuscaloosa 04, 1549 Graymont Avenue, West, Birmingham.
McGraw, Felix J., mc S. C. 39, recip. S. C. 40, No. 1, S. 55th Place, Birmingham.
McKinnon, Hector A., mc Ala. 10, sb 10, 1530 Tuscaloosa Ave., Birmingham.
McLean, Claude Cooper, mc Vanderbilt 08, sb 08, 2012 10th Ave. So., Birmingham.
McLester, James Bowron, mc Harvard 30, Nat. Bd. Ex. 33, 930 S. 20th St., Birmingham.
McLester, James Somerville, mc Univ. Va. 99, cb 02, 930 S. 20th St., Birmingham.
McQueen, Joseph Pickens, mc Tulane 11, sb 12, Martin Bldg., Birmingham.
McQuiddy, Robert Clayton, mc Ala. 12, sb 13, Med. Arts Building, Birmingham.
Meadows, Burton, mc New York Univ. 43, NBE 45, 708 Tuscaloosa Ave., Birmingham.
Meadows, James A., mc Ala. 12, sb 12, Med. Arts Bldg., Birmingham.
Mehaffey, Jonathan W., mc Ala. 13, sb 13, 7932 1st Ave. N., Birmingham.
Meyer, Benjamin S., mc Univ. Ill. 38, recip. Ill. 42, 1023 S. 20th St., Birmingham.
Meyer, Jerome, mc Johns Hopkins 14, sb 17, Med. Arts Bldg., Birmingham.
Miles, Nathan E., mc S. C. 34, recip. S. C. 37, Med. Arts Bldg., Birmingham. (S.)
Miller, Donald A., mc Western Reserve 37, recip. Ohio 40, 2501 N. 16th Avenue, Birmingham. (S.)
Miller, James A., mc M. & S. Chicago 13, sb 13, Wylam.
Mitchell, Henry Eugene, mc Tenn. 93, cb Blount 93, 2306 N. 21st Ave., Birmingham.
Mitchell, Sidney A., mc Vanderbilt 30, sb 30, Lewisburg Road. Birmingham, Rt. 7.
Moody, William E., mc S. C. 40, sb 40, 1400 N. 21st St., Birmingham.
Moore, David S., Jr., mc Ala. 08, cb 08, 1127 S. 12th St., Birmingham.
Moore, Joseph G., mc Ala. 11, sb 12, 1127 So. 12th St., Birmingham.
Morgan, John Ralph, mc Tulane 17, sb 17, 900 S. 20th St., Birmingham.
Morland, H. C., mc Ky. 05, cb Hale 05, 2703½ 30th Ave. N., Birmingham.
Morris, H. Brad, mc Emory 38, recip. Ga. 45, Med. Arts Bldg., Birmingham.
Morris, H. R., mc Univ. Nashville 06, cb St. Clair 06, Rt. 1, Box 470, Birmingham.
Morton, Benjamin F., mc Rush 32, sb 34, 811 S. 20th St., Birmingham.
Motley, Jewett P., mc Rush 36, sb 36, Ensley, Birmingham.
Motley, Samuel D., mc Ky. 03, cb Tallapoosa 03, 600½ 19th St., Ensley, Birmingham.
Murphy, Grover E., mc Ala. 11, sb 11, First National Building, Birmingham.
Nabers, Samuel F., mc Tulane 09, sb 08, 4221 S. 12th Ave., Birmingham.
Neely, Martin G., mc Univ. Va. 25, sb 25, T. C. I. Hosp., Fairfield.
Neville, Chas. W., mc Vanderbilt 28, recip. Tenn 29, 2620-33rd Ave. N., Birmingham.
Newfield, Semon U., mc Rush 26, recip. Ill. 27, 2012 10th Ave. S., Birmingham.
Nice, Charles McKinney, mc Pa. 04, cb 05, 1419 Windsor Circle, Birmingham.
Noland, Lloyd, mc Baltimore 03, pro forma USN 13, Fairfield.
Noojin, Ray O., mc Univ. Chicago 37, sb 38, 620 S. 20th St., Birmingham.
Norton, Ethelbert Moses, mc Vanderbilt 14, sb 15, 4604, Terrace 2, Central Park, Birmingham.
O'Connell, Edward, mc Bellevue 07, sb 09, Med. Arts Bldg., Birmingham.
Odom, H. G., mc Tenn. 22, sb 22, Irondale.
Oliver, Ernest R., mc Harvard 38, NBE 46, T. C. I. Hosp., Fairfield.
Orton, Allen E., mc Atlanta 08, sb 08, Muscoda Hospital, Bessemer.
Parsons, Joe L., mc Emory 26, recip. Ga. 27, 610½ 19th St., Ensley, Birmingham.
Parsons, William C., mc Emory 24, sb 25, Woodward Bldg., Birmingham.
Patton, William B., mc Johns Hopkins 35, recip. Md. 42, 2205 Highland Ave., Birmingham.

Paull, Benjamin P., mc Univ. Buffalo 38, recip. N. Y. 40, 1240 S. 29th St., Birmingham.
Payne, Brack Coleman, mc Ala. 16, sb 16, Lewisburg.
Payne, Edmund C., mc Univ. Va. 11, sb 11, New Castle.
Payne, William N., mc Louisville 33, recip. Miss. 37, Bessemer.
Pennington, Julius A., mc Tulane 39, recip. La. 40, Rt. 2, Box 188, Bessemer.
Perry, Ezra B., mc Tulane 38, sb 38, 712 S. 30th St., Birmingham.
Peterson, Edward J., mc Tulane 39, sb 40, Woodward Bldg., Birmingham.
Pfeiffer, Ralph B., mc Univ. Nebraska 40, recip. Mo. 42, Martin Bldg., Birmingham.
Phillips, Grady W., mc Emory 44, recip. Ga. 45, Jefferson Hospital, Birmingham.
Pierson, Thomas C., mc Ala. 11, sb 11, Alden.
Pitts, Edgar B., mc Tulane 38, sb 35, Ramsey McCormack Bldg., Ensley, Birmingham.
Poole, William L., mc Tulane 38, sb 38, Woodward Bldg., Birmingham.
Pope, Ernest C., mc Emory 19, recip. Va. 20, 2021 6th Ave. N., Birmingham.
Posey, Benjamin F., mc Ala. 10, sb 10, Rt. 3, Box 198, Birmingham.
Posey, Louis C., mc Harvard 35, sb 35, Med. Arts Bldg., Birmingham.
Pow, John R., mc Univ. South 03, cb St. Clair 03, Woodward.
Prescott, John L., mc Long Is. 44, sb 45, 2506-16th Ave., N., Birmingham.
Prescott, Wm. Ernest, mc Ala. 00, cb Chilton 00, 29½ N. 77th St., Birmingham.
Prescott, Wm. Ernest, Jr., mc Rush 27, sb 27, 29½ N. 77th St., Birmingham.
Pruitt, Elihu Posey, mc P. & S., Atlanta 05, cb Lowndes 05, 1611-15th Ave., N., Birmingham.
Pryor, Robert B. mc Tulane 05, cb Dallas 06, Ensley Hospital Clinic, Ensley, Birmingham.
Ransom, William Walter, mc Vanderbilt 88, cb 88, Empire Bldg., Birmingham.
Ray, Emmette C., mc Ala. 18, sb 18, 2012 Avenue F., Ensley, Birmingham.
Reagan, Cas, mc Tulane 24, recip. Tenn. 25, 1603-43rd St., Bellview Hgts., Birmingham.
Rike, Heber C., mc Tulane 24, sb 25, 1140 41st St., Belview Hts., Birmingham.
Riser, William H., Jr., mc Emory 38, sb 38, Med. Col. Ala., Birmingham.
Roberts, Wyatt S., mc Ala. 14, sb 14, Empire Bldg., Birmingham.
Robertson, Brison Oakley, mc Vanderbilt 18, sb 19, Empire Bldg., Birmingham.
Robertson, Jarratt P., mc Vanderbilt 23, recip. Tenn. 24, Med. Arts Bldg., Birmingham.
Robinson, Edward B., Jr., mc Tulane 36, sb 36, Employees' Hosp., Fairfield.
Roscoe, Goeffrey J., mc Univ. Budapest 36, sb 37, 2160 Highland Ave., Birmingham.
Rosser, Wm. Jas., mc Tulane 25, sb 25, Medical Arts Bldg., Birmingham.
Rountree, Walter B., mc Vanderbilt 27, recip. Tenn. 30, Thomas Sta., Birmingham.
Rucker, Edmond W., Jr., mc Univ. Denver 04, sb 08, Woodward Bldg., Birmingham.
Rudulph, Charles Murray, mc Ala. 00, cb Lowndes 00, 1200 S. 20th St., Birmingham.
Russell, Richard O., mc Tulane 22, sb 22, 2011 S. 9th Ave., Birmingham.
Schapiro, Mark M., mc George Washington 38, NBE 41, TCI Emergency Disp., Ensley, Birmingham. (S.)
Scofield, Theodore F., mc Tulane 26, sb 26, 2021-6th Ave., N., Birmingham.
Scott, Edgar Marvin, mc Ala. 01, cb Walker 01, 935 S. 20th St., Birmingham.
Scott, Walter F., mc Univ. Va. 04, cb 07, Med. Arts Bldg., Birmingham.
Seay, Jas. E., mc Tenn. 27, recip. Tenn. 28, Shades Mountain, Birmingham.
Seibold, James L., mc Tulane 21, sb 21, 1117 S. 22nd St., Birmingham.
Sellers, Henry Graham, mc Vanderbilt 00, cb Morgan 00, 1346½ Tuscaloosa Ave., Birmingham.
Sellers, Ira Jackson, mc Vanderbilt 97, cb 97, Chamber of Commerce Bldg., Birmingham.
Shannon, Paul W., mc Mich. 31, recip. Mich. 36, Woodward Bldg., Birmingham.
Shelton, James B., mc Tulane 34, sb 35, 1131 N. 28th St., Birmingham.
Sherrill, John D., mc Ala. 15, sb 17, Med. Arts Bldg., Birmingham.
Shropshire, Courtney William, mc Tenn. 00, cb Limestone 03, Frank Nelson Bldg., Birmingham.
Shugerman, Harry P., mc Johns Hopkins 08, sb 03, 2121 Highland Ave., Birmingham.
Sibley, Barney Dunbar, mc Ala. 98, cb Walker 99, Empire Bldg., Birmingham.
Silfermann, Salo Josef, mc Univ. Vienna 36, cb 45, Grace-New Haven Community Hosp., New Haven, Conn.
Simon, Harold E., mc Univ. Pittsburg 22, recip. Pa. 27, 2930 N. 12th Ave., Birmingham.
Simpson, John W., mc Vanderbilt 18, recip. Tenn. 22, 1117 So. 22nd St., Birmingham.
Sims, Albert G., mc Univ. Nashville 05, cb Talladega 05, Edgewater Mines, Rt. 8, Birmingham.
Siniard, Emmett Clarence, mc Vanderbilt 17, recip. Ky. 20, Acipco Dispensary, Birmingham.
Smelo, Leon Samuel, mc Univ. Pa. 34, recip. Pa. 42, 2234 Highland Ave., Birmingham.
Smith, Charles Henry, mc Ala. 03, sb 03, 3147 Norwood Blvd., Birmingham.
Smith, D. Driver, mc Tulane 35, recip. La. 38, 1207 S. 21st Place, Birmingham. (S.)
Smith, Elisha B., mc Ala. 12, sb 14, 913 S. 19th St., Birmingham.
Smith, Frank Campbell, mc Ala. 03, cb 03, Bessemer.
Smith, Greene H., mc Tenn. 16, sb 16, Ramsey Bldg., Ensley, Birmingham.
Smith, Henry Ralph, mc Tulane 25, sb 25, 2011 S. 9th Ave., Birmingham.
Smith, James Clement, mc Ala. 11, sb 11, 201 N. 77th St., Birmingham.
Smith, James G., mc Rush 29, recip. Ill. 35, 2311-21st Ave., S., Birmingham.
Smith, Thos. Luther, mc Tulane 23, sb 23, 201 N. 77th St., Birmingham.
Smith, Virgil D., mc Okla. 34, recip. Okla. 38, Leeds.
Snow, James S., mc Univ. Col. 34, sb 35, Comer Building, Birmingham.
Snow, John W., Jr., mc Chattanooga 07, cb Walker 07, Palos.
Somerset, Sterling M., mc Emory 27, sb 27, 5385 First Avenue North, Birmingham.
Sorrell, Lewis E., mc Ala. 17, sb 17, 1601 N. 25th St., Birmingham.
Sparks, David Hoyt, mc Tulane 12, sb 13, 831 3rd Ave. W., Birmingham.
Spies, Tom D., mc Harvard 28, recip. Ohio 40, Hillman Hospital, Birmingham.
Spira, Victor, mc Univ. Vienna 37, NBE 44, Empire Bldg., Birmingham.
Stabler, A. L., mc Vanderbilt 09, sb 08, Martin Bldg., Birmingham.
Stayer, Glenn, mc Duke 34, NBE 41, Woodward Building, Birmingham.
Stewart, J. Jones, mc Tulane 36, recip. La. 38, 3422 Norwood Blvd., Birmingham. (S.)
Stewart, Roddie L., mc Tenn. 34, recip. Tenn. 36, Bessemer. (S.)
Stewart, Russell T., mc Long Island 40, recip. N. Y. 42, Acmar.
Stewart, Vera B., mc Tenn. 41, recip. Tenn. 44, 2167 Highland Avenue, Birmingham.

Stockton, Frederick Eugene, mc Tulane 11, sb 19, Comer Bldg., Birmingham.
Stone, John J., mc Emory 37, recip. Ga. 41, TCI Dispensary, Pratt City.
Stuteville, Ethel, mc Univ. Ind. 21, recip. Ind. 41, Woodward Bldg., Birmingham.
Swann, Clair L., mc Univ. Kansas 39, recip. Kansas 42, 1504-32nd Ave., N., Birmingham.
Sweeney, Donald B. P., mc Univ. Iowa 40, recip. Iowa 41, 1131 N. 28th Street, Birmingham. (S.)
Talley, Dyer Findley, mc Tulane 92, cb 92, 1601 N. 25th St., Birmingham.
Terhune, S. Ralph, mc Tulane 30, sb 30, Woodward Bldg., Birmingham.
Terrill, James W., mc Ala. 13, sb 13, 3120 Avenue H, Ensley, Birmingham.
Thomas, Herbert H., mc Tulane 38, sb 38, 2300 Highland Ave., Birmingham.
Thuss, Chas. J., mc Vanderbilt 31, recip. Tenn. 34, 2230 N. 3rd Avenue, Birmingham.
Thuss, William G., mc Vanderbilt 20, recip. Tenn. 23, 2230 N. 3rd Avenue, Birmingham.
Timberlake, Landon, mc Md. 34, recip. Md. 37, 2121 Highland Avenue, Birmingham.
Townsend, John M., mc Mich. 30, recip. Mich. 37, U. S. Navy, Birmingham. (S.)
Trucks, J. Frank, mc Washington Univ. 36, sb 36, 103 N. 55th St., Birmingham.
Tucker, Easter W., mc Ala. 13, sb 14, P. O. Box 593, Fairfield.
Tucker, William C., mc Long Is. 42, sb 43, Norwood Hosp., Birmingham.
Turlington, Lee F., mc Pa. 14, sb 15, 1922 10th Ave. S., Birmingham.
Tyler, Richard E., mc Emory 28, sb 28, 1601 N. 25th St., Birmingham.
Underwood, S. Sellers, mc Tulane 17, sb 17, Med. Arts Bldg., Birmingham.
Vance, James Glenn, mc Ala. 05, cb Tuscaloosa 05, Massey Bldg., Birmingham.
Wainwright, Samuel P., mc Tulane 22, sb 23, 2501 N. 16th Ave., Birmingham.
Waldrop, R. W., mc Louisville 96, cb 97, Bessemer.
Walker, Alfred A., mc Cornell 05, cb 05, Highland Plaza Apts., Birmingham.
Wallace, Samuel H., mc Ala. 11, sb 11, 9 N. 55th St., Birmingham.
Ward, Henry Silas, mc Univ. Nashville 98, cb Blount 99, 1601 N. 25th St., Birmingham.
Ward, James Keene, mc Cornell 43, sb 44, Building 650, Bainbridge, Md.
Ward, Walter Rowland, mc Chattanooga 00, cb Tuscaloosa 00, Martin Bldg., Birmingham.
Warren, William E., mc Ala. 05, cb DeKalb 05, Mentone.
Warrick, Geo. W., mc Rush 33, sb 34, 900 S. 20th St., Birmingham.
Warrick, William D., mc Rush 34, sb 35, 2121 Highland Ave., Birmingham.
Watkins, Miles A., mc Tulane 09, sb 10, Comer Bldg., Birmingham.
Watterston, Charles, mc Tulane 09, sb 11, Empire Bldg., Birmingham.
Weaver, Thomas H., mc George Washington Univ. 40, NBE 44, 1131 N. 28th St., Birmingham.
Welch, Oliver W., mc Harvard 33, sb 37, Fairfield.
Welch, Stewart H., mc Cornell 07, sb 10, 1117 S. 20th St., Birmingham.
West, Otus T., mc Northwestern 40, sb 40, Employees' Hospital, Fairfield.
Wiesel, Bertram, mc Pa. 37, sb 37, Med. Arts Bldg., Birmingham.
Wiley, Clarence C., mc Baltimore 08, sb 09, Woodward Bldg., Birmingham.
Wilkinson, David Leonidas, mc Tulane 94, cb Autauga 94, Farley Bldg., Birmingham.
Wilks, Arthur E., mc Ala. 09, sb 09, 104 Second Ave., Powderly Sta., Birmingham.
Williams, Howard Bailey, mc Tulane 35, sb 36, 2121 Highland Ave., Birmingham.
Williams, James H., mc Rush 36, sb 36, Employees Hospital, Fairfield.
Williams, William J., mc Baylor 41, NBE 43, Nigeria, Africa.
Williamson, Byrn, mc Tenn. 36, recip. Tenn. 38, 2930 N. 12th Avenue, Birmingham.
Williamson, George William, mc Vanderbilt 00, sb 09, Bessemer.
Wilson, Charles Henry, mc Tulane 35, sb 35, Employees' Hosp., Fairfield.
Wilson, Cunningham, mc Pa. 84, cb 84, 2712 Hanover Circle, Birmingham.
Wilson, Frank C., mc Tulane 20, sb 20, Med. Arts Bldg., Birmingham.
Wilson, Jos. D., mc Washington Univ. 26, recip. Ohio 31, 2205 Highland Ave., Birmingham.
Wilson, Luther Elgin, mc Pa. 11, sb 13, Woodward Bldg., Birmingham.
Wilson, Ollie E., mc Ala. 10, sb 10, 1621 28th St., Fairview Sta., Birmingham.
Winn, Lochlin Minor, mc Tulane 00, sb 00, 1015 S. 22nd Street, Birmingham. (S.)
Wiygul, C. Harrison, mc Emory 37, recip. Ga. 39, Employees' Hospital, Fairfield.
Woodall, Paul S., mc Pa. 33, recip. Ill. 37, 811 S. 20th St., Birmingham.
Woods, Arthur W., mc Loyola 38, recip. Ill. 40, Woodward Building, Birmingham.
Woodson, Lewis G., Jr., mc Jefferson 20, sb 21, 1124 S. 20th St., Birmingham.
Woodson, Richard Carlisle, mc Tulane 04, cb Walker 06. Woodward Bldg., Birmingham.
Word, Samuel Buford, mc LSU 36, recip. Miss. 37, Med. Arts Bldg., Birmingham.
Wright, Duward O., mc Northwestern 30, sb 30, Med. Arts Bldg. Birmingham.
Wright, Solon W., mc Ala. 11, sb 11, Realty Bldg., Bessemer.
Yelton, Chestley Lee, mc Univ. Louisville 37, recip. Ky. 38, 1807 27th Street, Ensley, Birmingham.
Young, Allen C., mc Queen's Univ. 36, recip. D. C. 41, 630 N. 19th Street, Bessemer.

Total 442

PHYSICIANS NOT MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Ballard, Edward H. (col.), mc Howard 26, sb 27, 1420 7th Ave. N., Birmingham.
Barr, Edward, mc Ohio State Univ. 41, recip. Ohio 46, Rt. 1, Box 470, Birmingham.
Berry, James C., mc S. C. 95, cb 95, Trussville.
Bradford, Ferd D. (col.), mc Meharry 13, sb 13, 1630 N. 4th Ave., Birmingham.
Brewer, Henry H. (col.), mc Howard Univ. 35, recip. Kansas 38, 1410 Avenue F, Birmingham.
Broughton, N. J. (col.), mc Meharry 05, sb 05, 133 So. 61st St., Birmingham.
Brown, Walter L. (col.), mc Meharry 15, sb 15, 310 S. 23rd St., Birmingham.
Bryant, Henry Clay (col.), mc Univ. Chicago 11, sb 12, 310 N. 18th St., Birmingham.
Burwell, Edmund S., mc Harvard 20, recip. Ga. 41, 1220 S. 33rd St., Birmingham.
Cameron, Robert A., mc Tenn. 35, recip. Miss. 39, TCI Dispensary, Fairfield.
Clements, Merit DeWitt, mc Tulane 12, sb 12, 1012 S. 26th Street, Birmingham.
Cochran, John P., mc Ala. 14, sb 18, 1 So. 55th Place, Birmingham.
Dale, Henry L. (col.), mc Meharry 43, recip. Tenn. 44, 20 N. 2nd Street, Birmingham.
Dawkins, James T., mc Ala. 09, sb 09, 1903½ Avenue E, Ensley, Birmingham.

Demby, Lorenzo S. (col.), mc Meharry 25, sb 26, Bessemer.
Dozier, Byron, mc Barnes 97, cb Elmore 00, 12 21st Viaduct, Birmingham.
Drake, Wm. L. (col.), mc Meharry 25, sb 25, 5805 Avenue D., Fairfield.
Elkouire, Haickel A., mc Univ. Nashville 01, cb 06, 1625 S. 12th Ave., Birmingham.
Fields, Abijah C., mc Md. 25, sb 26, 1903½ Avenue E, Ensley, Birmingham. (Licensed revoked April 24, 1945.)
Fields, Elbert T., mc Bellevue 99, cb 99, 1903½ Avenue E, Ensley, Birmingham.
Giscombe, Cecil Stanley (col.), mc Meharry 16, sb 16, 4238 2nd Ave. N., Avondale.
Green, Anderson C., mc Ala. 14, sb 14, 2911 N. 16th St., Birmingham.
Hagler, Prewett L., mc Ala. 91, cb Tuscaloosa 91, 1205 8th Ave. N., Birmingham.
Hancock, Meda W., mc Univ. South 08, sb 09, Powhatan.
Hankins, John M., mc Univ. Nashville 07, sb 07, 6609 1st Ave., Birmingham.
Hanna, Henry P., mc Ala. 12, sb 13, Martin Bldg., Birmingham.
Harris, Samuel F. (col.), mc Meharry 19, recip. Ky. 26, 400 N. 17th St., Birmingham.
Huey, Ben Maclin, mc Emory 23, sb 24, 714 20th Street, Ensley, Birmingham.
Hutchinson, John E. (col.), mc Meharry 30, recip. Ga. 37, 400 N. 17th St., Birmingham.
Johnson, Roy E., mc Vanderbilt 09, sb 09, 7748 S. 1st Avenue, Birmingham.
Kincaid, John L., mc Ala. 12, sb 12, Bessemer.
Lilly, Robert E., mc Vanderbilt 25, recip. Tenn. 28, Box 181, Bessemer.
Maclin, Robert B. (col.), mc Meharry 05, cb Tuscaloosa 05, 2815 29th Ave. N., Birmingham.
Maneval, Karl Edgar, mc Univ. Pa. 34, NBE 42, Leeds.
Matthews, Herbert O. (col.), mc Howard 19, recip. Ind. 37, 103½ N. 21st St., Bessemer.
May, Frank H., mc Univ. South 98, cb Marion 99, 1617 N. 5th Avenue, Birmingham.
McCall, Marion G. (col.), mc Michigan 21, sb 23, 1630 4th Avenue N., Birmingham.
McCarn, Dan Wilson, mc Vanderbilt 34, recip. Tenn. 35, Warrior.
McCay, Timothy Cleveland, mc Ala. 15, sb 15, Pinson.
McPherson, Charles A. J. (col.), mc Meharry 17, sb 17, 1630 4th Avenue N., Birmingham.
Merritt, Thomas E., mc Jefferson 37, sb 38, Flattop.
Minderhout, Will John, mc Chicago M. & S. 21, recip. Ill. 33, 601-23rd St., Ensley, Birmingham.
Mitchell, Aldus S. (col.), mc Meharry 27, recip. Tenn. 28, 2724½ 29th Ave. N., Birmingham.
Moten, Pierce S. (col.), mc Meharry 06, cb 06, 818 S. 17th Street, Birmingham.
Newman, John Henry, mc Chicago Col. Osteopathy 33, sb 33, Woodward Bldg., Birmingham.
Patterson, Richard R., mc Queens Univ. 36, sb 39, Medical Arts Building, Birmingham.
Payne, Thomas Henry, mc Ala. 96, cb Shelby 96, 328 N. 17th Street, Birmingham.
Plump, Ad Wimbs (col.), mc Meharry 28, recip. Tenn. 32, 409 N. 10th Ct., Birmingham.
Porter, Daniel W. (col.), mc Meharry 05, cb Walker 06, 4315 N. 9th Ave., Birmingham.
Ragsdale, M. C., mc Univ. Nashville 05, sb 06, Bessemer.
Reynolds, Frederick K., mc Ala. 01, cb 01, 317 2nd Ave., Birmingham.
Robertson, James Kelly (col.), mc Leonard 10, recip. Ga. 23, 1728 20th St., Ensley. Birmingham.
Shepherd, Samuel T., mc Atlanta P. & S. 02, cb Walker 03, 4107 Terrace R., Birmingham.
Simpson, Frank S. (col.), mc Leonard 02, cb Russell 02, 421½ 17th St., Ensley, Birmingham.
Sims, Thos., mc Tulane 23, sb 23, Fairfield.
Springer, Homer C., mc Okla. 31, recip. Okla. 32, 630 N. 19th Street, Bessemer.
Stephens, Joseph H., mc Ala. 15, sb 15, 515 S. 55th Street, Birmingham.
Stoner, William P., mc Univ. Tenn. 37, recip. Tenn. 42, Virginia Mines, Bessemer, Rt.
Swan, Lionel F. (col.), mc Howard 39, recip. N. C. 43, 1410 Sixth Avenue S., Birmingham.
Trammell, Virgil, mc Ala. 12, sb 12, Huffman Rd., Rt. 6, Birmingham.
Ussery, Claudius Jackson, mc Tulane 21, sb 21, 1630 33rd St., Ensley, Birmingham.
Van De Voort, Horace, mc Ala. 10, sb 13, Bessemer.
Watson, William A., mc Memphis Hosp. 11, recip. Miss. 31, Gardendale, Rt. 7, Birmingham.
White, Charles Peyton, mc Memphis 09, sb 13, Labuco.
Whorton, William W., mc Vanderbilt 99, cb Marshall 00, Pratt City.
Woodall, P. H., mc Mich. 96, sb 00, Frank Nelson Bldg., Birmingham.
Young, T. H., mc Tulane 03, cb Lamar 03, 2 N. 60th St., Birmingham.

Total 67

(38) LAMAR COUNTY

Birmingham 1877

President—R. H. Redden	Sulligent
Vice-President—A. W. Clanton	Millport
Secretary-Treasurer—W. L. Box	Sulligent, Rt. 2
County Health Officer—W. L. Box (Act.)	Sulligent, Rt. 2

Censors—L. S. Coleman, Chairman, Millport; J. A. Jackson, Sulligent; J. M. Roberts, Vernon; C. A. Davis, Kennedy; W. L. Box, Sulligent, Rt. 2.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Box, W. L., mc Ala. 06, sb 06, Sulligent, Rt. 2.
Clanton, A. W., mc Miss. 07, cb 07, Millport.
Coleman, Luther S., ng, sb 09, Millport.
Davis, Charles A., mc Ala. 12, sb 12, Kennedy.
Jackson, John A., mc Memphis Hosp. 99, cb 99, Sulligent.
McClure, Herbert A., mc Atlanta 15, sb 15, Mayo, Fla.
Redden, Raymond Hollis, mc Memphis Hosp. 01, cb 01, Sulligent.
Roberts, John Monroe, mc Ala. 07, cb 07, Vernon.
Savage, Victor, mc Vanderbilt 89, cb Fayette 89, Kennedy.
Sizemore, D. M., mc Univ. Nashville 07, cb 07, Sulligent.

Total 10

PHYSICIANS NOT MEMBERS

Black, James Berton, mc Memphis Hosp. 04, cb 04, Vernon.
Collins, Francis A., mc Memphis Hosp. 92, cb 92, Beaverton.

Total 2

(39) LAUDERDALE COUNTY

Tuscaloosa 1887

President—L. C. Price	Florence
Vice-President—E. W. Gray	Florence
Secretary-Treasurer—C. J. Fisher	Florence
County Health Officer—C. J. Fisher	Florence

Censors—S. S. Roberts, Chairman, Florence; T. L. Bennett Jr., Florence; H. M. Simpson, Florence; W. J. Robbins, Florence; Wyatt Simpson, Florence.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Alexander, William W., mc Vanderbilt 31, recip. Tenn. 34, Florence.
Bayles, Lewis Eugene, mc Ala. 11, sb 11, Anderson.
Bayles, Louie Earl, mc Tulane 35, sb 35, Anderson.
Bennett, Thos. Lee, Jr., mc Tulane 29, sb 29, Florence.

Brown, John Richard, mc Washington Univ. 32, recip. Mo. 35, Florence.
Cashman, George A., mc Columbia P. & S. 19, recip. N. Y. 41, Florence.
Cheney, Henry W., mc Northwestern 92, recip. Ill. 42, Florence.
Cloyd, T. D., mc Grant 08, recip. Tenn. 23, Florence.
Cotton, Spencer F., mc Ala. 09, sb 14, Lexington.
Dunn, Milton C., mc Tenn. 41, recip. Tenn. 42, Florence.
Fisher, Charles Jack, mc Tulane 34, sb 34, Florence.
Gray, Edward W., mc Ala. 09, sb 10, Florence.
Jackson, Alva A., mc Northwestern 11, sb 12, Florence.
Jackson, Nial E., mc Long Is. 42, sb 43, Florence.
Kennedy, William C., Jr., mc Columbia Univ. 28, recip. N. Y. 38, Florence.
Maples, John M., mc Louisville 07, cb 07, Killen, RFD.
Moore, Wm. Roscoe, mc Memphis Hosp. 08, sb 07, Florence.
Price, Lance C., mc George Washington Univ. 33, sb 37, Florence.
Rea, John W., mc Univ. Tenn. 39, recip. Tenn. 46, Florence.
Robbins, Wm. Jesse, mc Atlanta P. & S. 12, sb 13, Florence.
Roberts, Shaler S., mc Atlanta 14, sb 14, Florence.
Simpson, Harry Moody, mc Ala. 15, sb 16, Florence.
Simpson, Wyatt C., mc Harvard 31, NBE 38, Florence.
Stringer, Myron Scott, mc Emory 23, recip. Ga. 28, Florence.
Waddell, John R., mc Vanderbilt 15, sb 15, Rogersville.
Walden, Joe D., mc Rush 37, sb 38, Florence.
Total 26

PHYSICIANS NOT MEMBERS

Belue, John C., ng, cb 90, Rogersville. (Retired.)
Hicks, Leonard J. (col.), mc Meharry 29, recip. Tenn. 33, Florence.
Long, Henry (col.), mc Meharry 20, sb 20, Florence.
Rousseau, Wm. R., mc Ala. 17, sb 17, Rogersville.
Stutts, Henry Lee, mc Ala. 00, cb 01, St. Joseph, Tenn., Rt. 1.
Taylor, J. W., mc Tenn. 15, sb 15, Lexington.
Total 6

(40) LAWRENCE COUNTY
Birmingham 1877

President—S. R. Sanders ..... Moulton
Vice-President—W. W. Irwin ..... Moulton
Secretary-Treasurer—L. R. Murphree ..... Moulton
County Health Officer—L. R. Murphree* ..... Moulton

Censors—J. A. Ussery, Chairman, Courtland; R. P. Irwin, Moulton; J. P. Dyar, Moulton; W. R. Taylor, Town Creek; S. R. Sanders, Moulton.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Dyar, James P., mc Tulane 23, recip. Tenn. 24, Moulton.
Farish, Clarence G., mc Tulane 33, sb 33, Moulton.
Irwin, Robert P., mc Ala. 10, sb 09, Moulton.
Irwin, Willard W., mc Emory 36, sb 36, Moulton.
Sanders, Samuel R., mc Ala. 08, sb 08, Moulton.
Taylor, Woodie R., mc Univ. Nashville 10, sb 10, Town Creek.
Ussery, James A., mc Ala. 15, sb 15, Courtland.
Total 7

PHYSICIANS NOT MEMBERS

McCrary, Dowell W., mc Memphis Hosp. 13, recip. Tenn. 19, Town Creek.
Total 1

(41) LEE COUNTY
Huntsville 1880

President—M. W. Samford ..... Opelika
Vice-President—J. G. Palmer ..... Opelika
Secretary-Treasurer—A. H. Graham ..... Opelika
County Health Officer—A. H. Graham ..... Opelika

*See also Morgan County.

Censors—F. H. Boyd, Chairman, Opelika; J. G. Palmer, Opelika; B. S. Bruce, Opelika; G. W. Blackshear, Opelika; B. F. Thomas, Auburn.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Askew, William, mc Wash. Univ. 37, recip. Mo. 39, Auburn.
Blackshear, Gill Wyeth, mc Tulane 23, recip. La. 26, Opelika.
Boyd, Frank H., mc Emory 30, sb 30, Opelika.
Bruce, Byron S., mc Univ. Texas 11, recip. Texas 20, Opelika.
Burkhead, DeWitt, mc Tulane 20, recip. La. 24, Opelika.
Deane, Helen, mc Univ. Minn. 20, recip. Minn. 43, Auburn.
Dennis, Jeptha Weldon, mc Emory 27, sb 27, Auburn.
Dupree, John Wesley, Jr., mc Emory 36, recip. Ga. 38. Opelika, Rt. 2.
Floyd, Henry T., mc Johns Hopkins 23, recip. Ind. 41, Auburn.
Graham, Arthur H., mc Toronto 22, sb 26, Opelika.
Henderson, Ernest A., mc Univ. Okla. 38, recip. Okla. 40, Opelika.
Hudson, Percy Dannelly, mc Emory 30, recip. Ga. 31, Opelika. (S.)
Johnson, George Edwin, mc Rush 40, sb 41, Auburn.
McLain, Andrew D., mc Ala. 01, cb Chambers 01, Salem.
Owsley, Lawrence H., mc Emory 40, recip. Va. 44, Opelika.
Owsley, Winfield S., mc Emory 24, sb 25, Opelika.
Palmer, Julian G., mc Tulane 23, sb 23, Opelika.
Samford, Millard W., mc Emory 34, recip. Ga. 36, Opelika.
Thomas, Benjamin F., mc Emory 17, sb 17, Auburn.
Walton, Mary, mc Univ. Minn. 30, NBE 41, Opelika.
Warren, Thurston A., mc Baylor 29, recip. La. 32, Auburn.
Yarbrough, Cecil S., mc Tenn. 01, cb Russell 01, Auburn.
Total 22

PHYSICIANS NOT MEMBERS

Darden, John W. (col.), mc Leonard 01, sb 02, Opelika.
Lindsey, Eugene A. (col.), mc Meharry 08, sb 09, Opelika.
Total 2

(42) LIMESTONE COUNTY
Birmingham 1877

President—J. S. Crutcher, Jr. ..... Athens
Vice-President—A. J. DuPuy ..... Athens
Secretary-Treasurer—C. V. Mayhall ..... Athens
County Health Officer—A. M. Shelamer* ..... Athens

Censors—H. A. Darby, Chairman, Athens; J. O. Belue, Athens; D. E. Jackson, Lester; A. J. DuPuy, Athens; C. V. Mayhall, Athens.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Belue, Julius O., mc Vanderbilt 15, sb 15, Athens.
Crutcher, John Sims, Jr., mc Vanderbilt 29, recip. Tenn 34, Athens.
Darby, Henry Alonzo, mc Ala. 01, cb 01, Athens.
DuPuy, Alton J., mc Baylor 27, recip. Texas 41, Athens.
Jackson, David E., mc Tenn. 38, recip. Tenn. 40, Lester.
Maddox, John Willard, mc Tenn. 21, recip. Tenn. 30, Ardmore.
Maples, Joseph Hemans, mc Univ. Nashville 05, cb 05, Athens.
Maples, William Ellis, mc Univ. Nashville 03, cb 03, Athens.
Mayhall, Clifford Vernon, mc Ala. 15, sb 15, Athens.
Nethery, Sidney J., mc Univ. Col. 34, sb 35, Belle Mina.
Pettus, J. J., mc Ala. 08, sb 08, Belle Mina.
Powers, Alvin Dow, mc Ala. 11, sb 11, Athens.
Teasley, Gerald H., mc Emory 30, recip. Ga. 34, Mayo Foundation, Rochester, Minn.

*See also Madison County.

Whitfield, Joe T., mc Univ. Tenn. 35, recip. Tenn. 46, Elkmont.
Total 14

PHYSICIANS NOT MEMBERS

Peyton, Wade H. (col.), mc Meharry 22, recip. Tenn. 29, Athens.
Total 1

(43) LOWNDES COUNTY
Mobile 1878

President—N. G. James ..... Hayneville
Secretary-Treasurer—E. F. Leatherwood ..... Hayneville
County Health Officer—E. F. Leatherwood ..... Hayneville

Censors—N. G. James, Chairman, Hayneville; E. F. Leatherwood, Hayneville; W. L. Staggers, Benton.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

James, Norman Gilchrist, mc Ala. 98, cb 98, Hayneville.
Leatherwood, Elbert F., mc Ala. 07, cb 07, Hayneville.
Staggers, William L., mc Ala. 16, sb 20, Benton.
Total 3

PHYSICIANS NOT MEMBERS

Coleman, Henry Neal, ng, sb 01, Ft. Deposit.
Total 1

(44) MACON COUNTY
Selma 1879

President—H. H. Winters ..... Tuskegee
Secretary-Treasurer—Murray Smith ..... Tuskegee
County Health Officer—Murray Smith ..... Tuskegee

Censors—P. M. Lightfoot, Chairman, Shorter; T. F. Taylor, Tuskegee; H. H. Winters, Tuskegee; B. W. Booth, Shorter; G. C. Yancey, Tuskegee.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Booth, Benson W., mc Ala. 05, cb Autauga 05, Shorter.
Holloway, Hosa Sellers, mc Tulane 41, sb 42, Notasulga.
Lightfoot, Philip Malcolm, mc Ala. 00, cb 00, Shorter.
Smith, Murray, mc Emory 29, sb 29, Tuskegee.
Taylor, Thomas F., mc Ala. 04, cb Mobile 04, Tuskegee.
Winters, Harry Hall, mc Tulane 24, recip. La. 26, Tuskegee.
Yancey, Gautier C., mc Ala. 19, sb 19, Tuskegee.
Total 7

PHYSICIANS NOT MEMBERS

Chenault, John W. (col.), mc Univ. Minn. 30, recip. Ill. 36, Tuskegee Institute.
Dibble, Eugene Heriot (col.), mc Howard 19, recip. D. C. 21, Veterans Hosp., Tuskegee.
Dwiggins, Horace Greeley (col.), mc Meharry 34, NBE 43, Veterans' Hosp., Tuskegee.
Thompson, Charleton, mc P. & S. Atlanta 99, cb 99, Tuskegee.
Walwyn, Cyril A. (col.), mc Howard 28, recip. D. C. 37, Tuskegee Institute.
Wilkerson, Leonard Boyce, mc Ky. 02, recip. Ky. 21, Shorter.
Williams, Joshua W. (col.), mc Howard Univ. 32, recip. Ga. 36, Veterans Hospital, Tuskegee.
Total 7

(45) MADISON COUNTY
Birmingham 1877

President—J. D. Moorman ..... Huntsville
Vice-President—J. H. Lary ..... Huntsville
Secretary-Treasurer—M. M. Duncan ..... Huntsville
County Health Officer—A. M. Shelamer ..... Huntsville

Censors—M. R. Moorman, Chairman, Huntsville; O. J. Brooks, Huntsville; C. A. Grote, Huntsville; J. B. Laughlin, Huntsville; W. F. Jordan, Huntsville.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Adams, George W., mc Washington Univ. 40, recip. Mo. 42, Huntsville.
Brooks, Osceola Judkins, mc Tulane 93, cb Elmore 93, Huntsville.
Caldwell, Edwin Valdivia, mc Ala. 07, sb 06, Huntsville.
Caldwell, Samuel Welch, mc N. Y. Univ. 40, NBE 46, Huntsville.
Carpenter, James Allen, mc Ala. 96, cb 96, New Hope.
Carpenter, James L., mc Vanderbilt 35, sb 35, New Hope.
Dickey, Edwin W., mc Chattanooga 97, cb Morgan 03, Hazel Green.
Dilworth, Thos. E., Jr., mc Vanderbilt 25, recip. Tenn. 26, Huntsville.
Duncan, Maurice Miller, mc Ala. 14, sb 14, Huntsville.
Grayson, Ambrose T., mc Chattanooga 06, sb 06, New Market.
Grote, Carl A., mc Ala. 12, sb 12, Huntsville.
Hamm, Pat, mc Univ. Ark. 41, recip. Ark. 45, Huntsville.
Hatchett, Wm. C., mc Memphis Hosp. 12, sb 12, Ft. Lauderdale, Fla.
Holliman, James D., mc Tenn. 24, sb 25, Huntsville.
Jordan, William F., mc Jefferson 09, sb 09, Huntsville.
Kyser, James Allen, mc Tulane 11, sb 11, Madison.
Lary, John H., mc Tulane 35, sb 35, Huntsville.
Laughlin, J. B., mc Va. 12, pro forma USN 20, Huntsville.
McCown, William G., mc Vanderbilt 28, recip. Tenn. 29, Huntsville.
McKissack, Wm. Milton, mc Univ. Chicago 27, sb 27, Huntsville.
Moorman, John D., mc Harvard 36, sb 40, Huntsville.
Moorman, Marion Ridley, mc Univ. South 00, cb 01, Huntsville.
Parker, Harry J., mc Loyola Univ. 37, recip. Ill. 41, Madison.
Russell, Christopher H., mc Ala. 12, sb 13, Huntsville.
Shelamer, Arthur McKee, mc S. C. 28, recip. S. C. 35, Huntsville.
Sentell, James H., mc Tenn. 04, cb Jackson 06, New Hope.
Summers, William Pleasant, mc Univ. Nashville 05, recip. Tenn. 19, Toney.
Walker, H. O., mc Vanderbilt 21, sb 21, Huntsville.
Walker, Moody, mc Vanderbilt 26, recip. Tenn. 34, Huntsville.
Whitaker, James E., mc Tulane 22, sb 23, Huntsville.
Wikle, Jesse Ollie, mc Ala. 15, sb 15, Madison.
Williamson, Edwin Oliver, mc Chattanooga 98, cb 98, Gurley.
Total 32

PHYSICIANS NOT MEMBERS

Beard, Robert S. (col.), mc Meharry 22, recip. Tenn. 24, Huntsville.
Cherry, Stark O. (col.), mc Temple 10, recip. Pa. 40, Oakwood Junior College, Huntsville.
Gumbs, Oliver S. (col.), mc Meharry 41, recip. Tenn. 42, Huntsville.
Total 3

(46) MARENGO COUNTY
Birmingham 1877

President—C. J. Stallworth ..... Thomaston
Vice-President—C. E. Rhodes ..... Jefferson
Secretary-Treasurer—C. E. Kimbrough ..... Linden
County Health Officer—C. E. Kimbrough (Act.) ..... Linden

Censors—C. J. Stallworth, Chairman, Thomaston; T. H. Gaillard, Magnolia; C. E. Kimbrough, Linden; A. H. Bobo, Demopolis; W. E. Allen, Sweetwater.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Allen, Walter Earl, mc Tenn. 16, sb 16, Sweet Water.
Bobo, Arlington H., mc Ala. 11, sb 11, Demopolis.
Cameron, Turner C., mc Ala. 07, sb 07, Faunsdale.
Cocke, William T., mc Ala. 03, cb Hale 03, Demopolis.
Dunning, Guy Jennings, mc Ala. 11, sb 11, Linden.
Dunning, Guy J., Jr., mc Tulane 42, NBE 46, Linden.
Gaillard, Thos. Hamilton, mc Ala. 06, cb Mobile 06, Magnolia.
Hand, Leslie M., mc Ky. 04, cb 04, Demopolis.
Kimbrough, Cecil Emmett, mc Tulane 26, sb 26, Linden.
Rhodes, Chas. E., mc Univ. South 05, cb 06, Jefferson.
Stallworth, Clarke Jackson, mc Md. 12, sb 12, Thomaston.
Williams, Gerald N., mc Tulane 32, Nat. Ex. Bd. 33, Linden.
Total 12

PHYSICIANS NOT MEMBERS

Lee, Earl F., mc Ala. 03, cb 04, Rt. 1, Box 41, Gastonburg.
Nutter, Robert A., mc Va. 40,recip. Va. 42, Demopolis.
Total 2

(47) MARION COUNTY
Montgomery 1888

President—R. L. Hill ..... Winfield
Vice-President—J. L. Wilson ..... Hackleburg
Secretary—M. S. White ..... Hamilton
Treasurer—J. R. Burleson ..... Hamilton
County Health Officer—M. S. White (Act.) ..... Hamilton

Censors—J. R. Burleson, Chairman, Hamilton; R. B. Garlington, Brilliant; M. S. White, Hamilton; M. C. Hollis, Winfield; S. S. Busby, Hamilton.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Brooks, James Otis, mc Tenn. 35, recip. Tenn. 39, Hamilton.
Brown, James Rias, mc Memphis Hosp. 12, sb 13, Rt. 1, Bexar.
Burleson, John Rufus, mc Memphis Hosp. 97, cb 97, Hamilton.
Busby, S. S., mc Ala. 08, sb 08, Hamilton.
Garlington, Robert Bernard, mc Emory 21, sb 21, Brilliant.
Hill, Robert L., mc Memphis Hosp. 05, cb 05, Winfield.
Hollis, Murray C., mc Memphis Hosp. 08, sb 08, Winfield.
White, Marvin S., mc Louisville 03, cb 03, Hamilton.
Wilson, John L., mc Ala. 11, sb 12, Hackleburg.
Total 9

PHYSICIANS NOT MEMBERS

Cochran, William W., mc Chattanooga 05, cb 05, Brilliant.
Total 1

(48) MARSHALL COUNTY
Anniston 1886

President—B. N. Lavender ..... Albertville
Vice-President—A. G. Finlay ..... Guntersville
Secretary-Treasurer—Lee Weathington ..... Guntersville
County Health Officer—Lee Weathington ..... Guntersville

Censors—A. G. Finlay, Chairman, Guntersville; A. L. Isbell, Albertville; J. M. Crawford, Arab; H. E. Barker, Boaz; B. C. Scarbrough, Albertville.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Barker, Hampton E., mc Emory 32, recip. Ga. 34, Boaz.
Barnard, Radford M., mc Tenn. 26, sb 27, Arab.
Couch, Ezekiel H., mc Vanderbilt 05, cb 05, Guntersville.
Crawford, Jas. M., mc Tenn. 29, sb 30, Arab.
Finlay, Andrew G., mc Univ. Col. 29, recip. Col. 33, Guntersville.
Horsley, Henry L., mc Univ. Nashville 04, cb 04, Boaz.
Huckaby, W. R., mc Ala. 15, sb 15, Guntersville.
Hunt, Marston T., mc Tenn. 34, sb 34, Boaz.
Hyatt, Ernest M., mc Ala. 11, sb 11, Albertville.
Isbell, A. L., mc Ala. 12, sb 12, Albertville.
Lavender, Belton N., mc Tenn. 38, recip. Tenn. 39, Albertville.
Martin, Thos. E., mc Vanderbilt 25, recip. Tenn. 27, Guntersville.
Rogers, Harold Lawton, mc Rush 35, sb 35, Albertville.
Scarbrough, B. C., mc Tenn. 11, sb 11, Albertville.
Venning, Edward W., mc Univ. Va. 38, recip. Va. 39, Guntersville.
Watwood, James A., mc Emory 25, sb 25, Arab.
Weathington, Lee, mc Ala. 13, sb 13, Guntersville.
Total 17

PHYSICIANS NOT MEMBERS

Fennell, Robt. F., mc Tulane 11, sb 11, Guntersville. (Retired).
Jordan, D. C., mc Memphis Hosp. 92, cb 92, Guntersville. (Retired).
Noel, William East, mc Grant 99, cb 00, Boaz. (Retired.)
Total 3

(49) MOBILE COUNTY
Mobile 1876

President—John Day Peake ..... Mobile
Vice-President—John M. Wilson ..... Mobile
Secretary—W. W. Scales ..... Mobile
Treasurer—F. T. Boudreau ..... Mobile
County Health Officer—O. L. Chason ..... Mobile

Censors—E. W. Cawthon, Chairman, Plateau; J. M. Weldon Mobile; G. O. Segrest, Mobile; A. M. Cowden, Crichton; L. W. Hollis, Mobile.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Acker, Paul Jerome Moeris, mc Ala. 92, cb 92, 153 Government St., Mobile.
Adams, M. Vaun, mc Penn. 28, sb 28, 803 Government St., Mobile.
Amendola, Arthur A., mc St. Louis Univ. 37, recip. Tenn. 44, Merchants National Bank Bldg., Mobile.
Armistead, John Robert, mc Md. 08, sb 08, Prichard.
Baumhauer, Charles A., mc Tulane 38, sb 38, Van Antwerp Bldg., Mobile.
Baumhauer, Jacques H., mc Tulane 26, sb 27, 653 Government St., Mobile.
Beck, Julius Edward, mc Ala. 12, sb 12, 103 Dauphin St., Mobile.
Bell, John Mac. mc Ala. 15, sb 15, 700 Government St., Mobile.
Blake, Theodore M., mc Ala. 00, cb 03, Toulminville.
Bondurant, Eugene DuBose, mc Univ. Va. 83, cb Hale 83, 1109 Government St., Mobile.
Boudreau, Floyd T., Jr., mc Tulane 30, recip. La. 33, 103 Dauphin Street, Mobile.
Brown, Alexander John, mc St. Louis Univ. 35, recip. Mo. 36, 56 St. Joseph St., Mobile.
Brown, Leland Leslie, mc Tenn. 42, recip. Tenn. 43, 1st Nat. Bk. Bldg. Annex, Mobile.
Cawthon, Edly W., mc Ala. 08, sb 08, Plateau.
Chason, Otis L., mc Tulane 25, sb 25, 119 Conti St., Mobile.
Clarke, Norborne R., Jr., mc Penn. 26, sb 28, 1201 Springhill Avenue, Mobile. (S.)
Cleveland, Claude Mastin, mc Tulane 21, sb 25, 103 Dauphin St., Mobile.
Cogburn, Harry Reginald, mc Ala. 13, sb 13, 56 St. Joseph St., Mobile.
Cowden, Arthur M., mc Ala. 16, sb 16, Crichton.
Davis, Charles S., mc Univ. Ind. 27, sb 27, 1155 Springhill Avenue, Mobile.
Dix, Albert Sidney, mc Rush 36, sb 37, 4 N. Jackson St., Mobile.
Dodson, James Horace, mc Ala. 14, sb 14, 103 Dauphin St., Mobile.

Doehring, Erich T., mc Griefswald 21, sb 21, 1st Nat. Bk. Bldg. Annex, Mobile.
Dowling, Herbert Bascom, Jr., mc Ala. 20, sb 20, 803 Government St., Mobile.
Earl, Alfred R., mc Syracuse Univ. 35, recip. N. Y. 45, Merchants Nat. Bk. Bldg., Mobile.
Eichold, Samuel II, mc Tulane 40, recip. La. 46, Van Antwerp Bldg., Mobile.
England, Francis Tillman, mc Tenn. 34, recip. Tenn. 36, 50 S. Franklin St., Mobile.
England, John Tillman, mc Ala. 99, cb 99, 50 S. Franklin St., Mobile.
Fonde, George Heustis, mc Ala. 97, cb 97, 113 St. Francis St., Mobile.
Fonde, William Gorgas, mc Tulane 40, recip. La. 41, 113 St. Francis St., Mobile.
Frazer, Emmett B., mc Ala. 18, sb 18, 109 N. Conception St., Mobile.
Gaines, Marion Toulmin, mc Ala. 90, cb 92, Toulminville.
Gay, Nathaniel S., mc Ala. 00, cb 01, Whistler.
Goldsmith, Edward F., mc Tulane 34 sb 34, Atmore.
Graham, Joseph B., mc Univ. Va. 28, recip. Va. 32, 1317 Springfield Ave., Mobile.
Gray, Henry W., mc Ky. 03, sb 13, Crichton.
Greene, John H., mc Univ. Va. 29, recip. Va. 42, Whistler.
Haas, Toxey Daniel, mc Ala. 12, sb 12, 103 Dauphin St., Mobile.
Hannon, William Campbell, mc Ala. 16, sb 16, 1257 Springhill Ave., Mobile.
Heiter, Wm. Leslie, mc Tulane 28, sb 28, 103 Dauphin St., Mobile.
Henderson, Andrew D., mc Vanderbilt 29, recip. Tenn. 30, 259 St. Francis St., Mobile.
Henderson, Thos. Bain, Jr., mc S. C. 43, recip. S. C. 44, 259 St. Francis St., Mobile.
Hill, Vivian H., mc Emory 26, recip. Ga. 28, 904 Government St., Mobile.
Hinton, Lawrence H., mc Emory 28, recip. Miss. 29, 103 Dauphin Street, Mobile.
Hollis, Lotta Winston, mc Ala. 20, sb 20, 56 St. Joseph St., Mobile.
Hope, John C., mc Ala. 08, sb 09, 200 Dauphin St., Mobile.
Howard, Percy John, mc Ala. 96, cb 96, 103 Dauphin St., Mobile.
Inge, Francis Marion, mc Md. 10, sb 10, 14 St. Joseph St., Mobile.
Inge, James Tunstall, mc Univ. New York 94, cb 95, 55 S. Joachim St., Mobile.
Ingram, Geo. H., mc Tulane 21, sb 21, Veterans Admin., Tuscaloosa. (S.)
Johnson, Gayle T., mc Univ. Ark. 30, recip. La. 34, 56 St. Joseph St., Mobile.
Jones, William C., mc Ala. 07, sb 07, 103 Dauphin St., Mobile.
Kilpatrick, George Carlton, mc Tulane 08, sb 15, 103 Dauphin St., Mobile.
Lester, Richard P., mc Emory 25, sb 25, 103 Dauphin St., Mobile.
Liebeskind, Milton M., mc Univ. Tenn. 42, recip. Tenn. 43, Prichard.
Little, Joe H., mc Emory 28, sb 28, 103 Dauphin St., Mobile.
Martin, Henry F., mc Vanderbilt 22, recip. Tenn. 26, 904 Government St., Mobile.
Maury, Frank H., mc Tulane 32, recip. La. 46, 109 N. Conception St., Mobile.
McCall, Daniel T., mc Louisville 94, cb Choctaw 94, 1901 Government St., Mobile.
McClure, Herbert Cecil, mc Med. Evan. 40. NBE 42, 108 N. Conception, Mobile.
McVay, Leon Victor, mc Ala. 15, sb 15, 200 Dauphin St., Mobile.
Meeker, Wm. Raymond, mc Rush 19, Nat. Ex. Bd. 26, 109 N. Conception St., Mobile.
Minnich, William C., mc Med-Chir. Phila., 04, recip. Pa. 45, 971 Old Shell Rd., Mobile.
Minor, Walter H., mc Emory 29, sb 29, 354 St. Francis St., Mobile.
Mitchell, George J., mc Tulane 39, recip. Miss. 44, 451 Government St., Mobile.
Mohr, Charles A., mc Ala. 84, cb 92, 254 St. Anthony St., Mobile.
Moorer, Monte LeRoy, mc Ala. 17, sb 17, Mt. Vernon.
Mulherin, Hugh G., mc Univ. Ga. 29, recip. Ga. 30, 1260 Springhill Ave., Mobile.
Murphy, Samuel S., Jr., mc Tulane 38, recip. La. 40, 56 St. Joseph St., Mobile.
Muscat, Jos. O., mc St. Louis Univ. 31, sb 31, 58 N. Conception St., Mobile.
Muscat, Vincent Paul, mc St. Louis Univ. 43, recip. Mo. 45, 58 N. Conception St., Mobile.
Newburn, George W., mc Ala. 07, cb 07, Prichard.
Newburn, George W., Jr., mc Tulane 41, sb 41, Prichard.
North, William E., mc Emory 40, recip. Ga. 42, Prichard.
O'Gwynn, John C., Jr., mc Tenn. 29, recip. Tenn. 30, 1565 Dauphin St., Mobile.
Oswalt, George Guy, mc Ala. 14, sb 14, 56 St. Joseph St., Mobile.
Parsons, Walter S., mc McGill Univ. 17, sb 44, 603 First Nat. Bk. Bldg., Mobile.
Partridge, Clarence V., mc Tulane 30, sb 31, 1201 Springhill Avenue, Mobile.
Peake, John Day, mc Univ. Va. 30, recip. Va. 32, 1208 Springhill Ave., Mobile.
Perdue, James Devote, mc Ala. 13, sb 13, 56 St. Joseph St., Mobile.
Perry, Alton R., mc Baylor 30, recip. Texas 40, 56 St. Joseph St., Mobile. (S.)
Peterson, James Jesse, mc Tulane 01, cb Lee 01, 103 Dauphin St., Mobile.
Reaves, Jesse Ullman, mc Tulane 08, sb 08, 103 Dauphin St., Mobile.
Roach, Alexander N. T., mc Univ. South 02, cb Perry 02, 911 Government St., Mobile.
Roberts, Mack Jerome, mc Tulane 30, recip. La. 32, 103 Dauphin St., Mobile.
Roe, Lee Wright, mc Ala. 01, cb 01, 103 Dauphin St., Mobile.
Ross, Cecil H., mc Tenn. 16, sb 16, 359 St. Francis St., Mobile.
Rouse, Clyde C., mc Tulane 27, recip. La. 28, 56 St. Joseph St., Mobile.
Rowe, Harry S., mc Emory 22, sb 22, Mt. Vernon.
Rowe, Jos. Flournoy, mc Ala. 14, sb 14, 107 S. Joachim Street, Mobile.
Rumpanos, Socrates N., mc Duke 37, NBE 34, 1308 St. Stephens Rd., Mobile.
Rutherford, Chas. L., mc Emory 27, sb 27, 309 Government St., Mobile.
Sanders, J. Gillis, mc Tulane 13, sb 13, 56 St. Joseph St., Mobile.
Saunders, Joseph H., mc Tulane 37, recip. La. 45, Merchants Nat. Bk. Bldg., Mobile.
Savage, Charles H., mc Tulane 17, pro forma USN 19, Prichard.
Scales, Willis West, mc Ala. 96, cb 96, 119 Conti St., Mobile.
Segrest, Grady Oscar, mc Emory 24, sb 24, 653 Government St., Mobile.
Sellers, David F., mc Tulane 29, recip. La. 40, 103 Dauphin St., Mobile.
Sellers, William L., Jr., mc Wash. Univ. 36, recip. Mo. 39, 103 Dauphin St., Mobile.
Sledge, Edward Simmons, mc Pa. 09, sb 10, 1201 Springhill Avenue, Mobile.
Spitzberg, Randolph H., mc Univ. Ark. 36, recip. Ark. 38, Mobile. (S.)
Stephens, Selden H., mc Emory 23, sb 23, 14 St. Joseph St., Mobile.
Stephens, Warren C., mc Tulane 35, sb 35, 14 St. Joseph St., Mobile.
Sumner, Isaac C., mc Univ. Ark. 28, sb 28, 55 S. Joachim Street, Mobile.

Taylor, Earle Ernest, mc Tenn. 04, cb Baldwin 04, Crichton.
Taylor, James Leslie, mc Tulane 20, sb 21, 56 St. Joseph St., Mobile.
Taylor, Richard V., Jr., mc Univ. Va. 10, sb 12, 1201 Springhill Avenue, Mobile.
Terrill, Edward Chapin, mc Ala. 09, sb 10, Rt. 1, Box 210, Crichton.
Thompson, Wm. A., mc Univ. Tenn. 04, cb Baldwin 04, Citronelle.
Tisdale, William C., mc Tulane 18, sb 18, Mt. Vernon.
Walker, Howard S. J., mc Memphis Hosp. 13, sb 14, 103 Dauphin St., Mobile.
Warren, Claude M., mc Louiseville 38, recip. Ky. 39, 103 Dauphin St., Mobile.
Webb, Virginia E., mc LSU 33, recip. La. 42, 1201 Springhill Ave., Mobile.
Webster, Harry N., Jr., mc Jefferson 41, sb 41, 113 St. Francis St., Mobile.
Weldon, Joseph Marion, mc Ala. 13, sb 13, 45 N. Government St., Mobile.
Williams, Guy H., mc Okla. 34, recip. Okla. 42, Merchants Nat. Bk. Bldg., Mobile.
Wilson, John M., mc Ala. 07, sb 07, 103 Dauphin St., Mobile.
Wise, I. Milton, mc Indiana 24, recip. Ohio 26, 56 St. Joseph St., Mobile.
Wood, Arthur A., mc Tulane 31, sb 31, 103 Dauphin St., Mobile. (S.)
Wright, Ruffin A., mc Univ. Va. 89, cb Sumter 89, 6 S. Ann St., Mobile.
Zieman, Alphonse Hays, mc Tulane 35, sb 35, Van Antwerp Bldg., Mobile.
Zieman, Stephen A., mc Rush 32, recip. Ill. 44, 805 Government St., Mobile.
Total 122

PHYSICIANS NOT MEMBERS

Adams, John Thomas, mc Ala. 09, sb 09, 169 Dauphin St., Mobile.
Farrior, Lawrence B., mc Ala. 16, sb 16, Merchants Nat. Bk. Bldg., Mobile.
Flippo, La Faun N., mc Ala. 04, cb Franklin 07, 306 Dauphin Street, Mobile.
Foster, John E., mc LSU 44, recip. La. 45, City Hospital, Mobile.
Franklin, James Alexander (col.), mc Michigan 14, sb 15, 570 Davis Avenue, Mobile.
Gessler, Ivan W., mc Tulane 38, recip. Tenn. 42, Chickasaw. (S.)
Goode, E. B. (col.), mc Meharry 28, recip. Tenn. 29, 1066 Davis Ave., Mobile.
Hudson, Victor T., Univ. Tenn. 37, recip. Tenn. 46, 1750 Cardinal Drive East, Mobile.
Innis, Samuel B. (col.), mc Meharry 05, sb 05 ,1062 Davis Ave., Mobile.
Kirklin, Marion A., mc Ala. 13, sb 13, Prichard.
Lane, Leonard T., mc Ala. 12, sb 12, Prichard.
Lange, Charles E. F., mc Univ. Texas 42, recip. Texas 43, Chickasaw.
Lightcap, Clement A., mc Jefferson 41, recip. La. 46, Crichton.
Marshall, Wallace S., mc Northwestern 32, recip. Wis. 43, 103 Dauphin St., Mobile.
Miller, Irvin S., mc Columbia Univ. 26, recip. Va. 44, 56 St. Joseph St., Mobile.
Oden, Georgia E. (col.), mc Howard 32, NBE 33, 1258 Congress St., Mobile.
Peters, Robert H., mc Ala. 94, cb 95, Mobile.
Reneke, Edward J., mc Tenn. 29, recip. Tenn. 32, 951 Marine St., Mobile.
Spottswood, Dillon J., mc Ala. 90, cb 92, 54 N. Washington Ave., Mobile.
Stevens, Thomas A. (col.), mc Howard 25, recip. Pa. 40, 1258 Congress St., Mobile.
Tapia, Mose Hudson, mc Ala. 20, sb 20, Bayou La Batre.
Taylor, John Francis (col.), mc Meharry 16, sb 16, 505 St. Michael St., Mobile.
White, Meredith, mc Am. Sc. Osteopathy 10, sb 10, 14 St. Joseph St., Mobile.
Wilkerson, G. H. (col.), mc Meharry 97, cb 97, 608 Congress St., Mobile.
Winsor, Carleton W., mc Univ. Mich. 28, recip. Mich. 46, Spring Hill.
Total 25

(50) MONROE COUNTY

Birmingham 1877

President—W. A. Stallworth ..... Frisco City
Vice-President—J. J. Dailey ..... Tunnel Springs
Secretary-Treasurer—W. W. Eddins ..... Monroeville
County Health Officer—W. W. Eddins (Act). Monroeville

Censors—R. A. Smith, Chairman, Monroeville; E. R. Cannon, Vredenbergh; T. E. Dennis, Monroeville; W. W. Eddins, Monroeville; W. A. Stallworth, Frisco City.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Broughton, William Edward, mc Louisville 10, sb 10, Perdue Hill.
Cannon, Edmund R., mc Ala. 05, cb Wilcox 05, Vredenbergh.
Cobb, Wm. Floyd, mc Vanderbilt 95, cb 98, Frisco City.
Dailey, John Jonathan, mc Ala. 06, cb 06. Tunnel Springs.
Dennis, Thomas Edmund, mc Univ. South 08, sb 08, Monroeville.
Eddins, Woodrow W., mc Rush 37, sb 37, Monroeville.
Gaillard, Samuel S., mc Ala. 10, sb 10, Rt. 1, Frisco City.
Smith, Rayford A., mc Ala. 12, sb 13, Monroeville.
Stallworth, William A., mc Emory 24, sb 24, Frisco City.
Total 9.

PHYSICIANS NOT MEMBERS

Stacey, Andrew G., mc Ky. 05, cb 06, Evergreen, Rt. 1.
Total 1

(51) MONTGOMERY COUNTY

Eufaula 1878

President—W. R. Britton ..... Montgomery
Vice-President—J. W. Davis ..... Montgomery
Secretary—D. B. Monsky ..... Montgomery
Treasurer—F. C. Stevenson ..... Montgomery
County Health Officer—J. L. Bowman ..... Montgomery

Censors—D. G. Gill, Chairman, Montgomery; D. S. Hagood, Montgomery; F. W. Riggs, Montgomery; Robert Parker, Montgomery; C. K. Weil, Montgomery.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Abrams, Maurice J., mc Johns Hopkins 30, recip. Md. 33, 201 Montgomery St., Montgomery.
Anderson, Benjamin F., mc Ala. 08, sb 09, Sellers.
Austin, Burton F., mc Ala. 17, sb 17, 519 Dexter Ave., Montgomery.
Barnes, J. MacIlwaine, mc Emory 28, sb 28, Bell Bldg., Montgomery.
Bartlett, Haywood S., mc Emory 29, sb 29, 36 Clayton St., Montgomery.
Bazar, Philip S., mc McGill 36, sb 39, 201 Montgomery St., Montgomery. (S.)
Benkwith, Karl B., mc Univ. Rochester 34, recip. Minn. 40, 36 Clayton St., Montgomery.
Bennett, Willard D., mc Vanderbilt 40, recip. Tenn. 45, Moore Bldg., Montgomery.
Bickerstaff, James Warren, mc Emory 27, sb 28, First National Bank Bldg., Montgomery.
Bird, Buford Cosby, mc Emory 12, recip. Ga. 19, 221 S. Court St., Montgomery.

Blue, John Howard, mc P. & S. N. Y. 01, sb 01, 201 Montgomery St., Montgomery.
Bograd, Nathan, mc St. Andrews (Scot.) 35, sb 36, 818 Bell Bldg., Montgomery.
Boozer, Thomas S., mc Washington Univ. 37, sb 37, 32 Clayton St., Montgomery.
Bowman, James Luther, mc Univ. Va. 97, cb Bullock 01, City Hall, Montgomery.
Branch, Jno. L., mc Harvard 26, Nat. Ex. Bd. 29, 201 Montgomery St., Montgomery.
Brannon, William T., mc Rush 40, sb 41, 305 Church St., Montgomery.
Britton, William R., mc Emory 29, recip. Ga. 35, 4 Catoma St., Montgomery.
Broach, Norman Leslie, mc Emory 09, sb 03, Pine Level.
Buchanan, John P., mc Ala. 92, cb Butler 92, 3 S. Court St., Montgomery.
Buresch-Henke, Hildegard, mc Univ. Breslau 34, sb 37, 462 S. Court St., Montgomery.
Burke, Rush Pearson, mc P. & S. N. Y. 08, sb 10, 201 Montgomery St., Montgomery.
Burwell, Philip K., mc Tulane 40, recip. La. 41, Moore Bldg., Montgomery.
Cannon, Douglas Launeese, mc Jefferson 19, sb 20, 519 Dexter Ave., Montgomery.
Chapman, Frank E., mc LSU 37, recip. La. 44, 708 Cloverdale Road, Montgomery.
Climo, Henry J., mc Ohio State 37, recip. Ohio 39, Bell Bldg., Montgomery.
Cobbs, Beverly Woodfin, mc Tulane 19, sb 19, 28 Sayre St., Montgomery.
Cohen, Nace R., mc Emory 37, recip. Ga. 40, 108 Moore Bldg., Montgomery.
Collins, Henry C., mc Emory 34, recip. Ga. 37, 25 Wilkinson St., Montgomery.
Cowles, A .D., mc Ala. 11, sb 11, Ramer.
Daniel, William A., Jr., mc Northwestern 39, NBE 41, 115 S. Union St., Montgomery.
Davis, John Walter, Jr., mc Univ. Va. 32, recip. Va. 37, 201 Montgomery St., Montgomery.
Dawson, Harris Pickens, mc Tulane 10, sb 09, 17 Adams Ave., Montgomery.
Day, Jane Matthews, mc Washington Univ. 41, sb 42, 201 Montgomery St., Montgomery.
Day, Robert C., mc Tulane 37, recip. La. 46, Bell Building, Montgomery.
De Janney, Nicholas H., mc Georgetown Univ. 31, recip. N. J. 42, 519 Dexter Ave., Montgomery.
Dillon, John F., 3rd., mc Washington Univ. 36, recip. Mo. 39, 201 Montgomery St., Montgomery.
Dodge, Eva, mc Univ. Md. 25, NBE 38, Univ. Ark. Sc. Med., Little Rock, Ark.
Farrior, James Harvey, mc Rush 30, recip. Ind. 34, 201 Montgomery St., Montgomery.
Gayden, Lewis R., mc Vanderbilt 25, recip. Tenn. 46, 201 Montgomery St., Montgomery.
Gill, Daniel Gordon, mc Univ. Toronto 22, sb 26, 519 Dexter Ave., Montgomery. (S.)
Glazer, Harry, mc Tulane 31, recip. La. 34, 818 Bell Bldg. Montgomery.
Gunter, Wm. A. 3rd., mc Johns Hopkins 26, recip. N. J. 30, 203 S. Court St., Montgomery.
Hagood, Daniel Salley, mc Tulane 25, recip. La. 26, First Nat. Bk. Bldg., Montgomery.
Haigler, James Robert, mc Ala. 97, sb 97, 315 Narrow Lane Rd., Montgomery.
Hicks, James B., mc Johns Hopkins 24, recip. Md. 41, 201 Montgomery St., Montgomery.
Hill, James Fitts, mc P. & S. N. Y. 11, recip. Wash. 23, 305 Church St., Montgomery.
Hill, Luther L., Jr., mc Tulane 29, recip. La. 30, 24 S. Perry St., Montgomery.
Hill, Robert Somerville, mc Univ. N. Y. 91, cb 91, 310 Montgomery St., Montgomery.
Holding, Bruce Fowler, mc Va. 17, pro forma USN 21, 201 Montgomery St., Montgomery.
Hough, James Spencer, mc Georgetown 93, recip. D. C. 23, 519 Dexter Ave., Montgomery.
Hubbard, Thomas Brannon, mc P. & S. N. Y. 10, sb 12, 515 Forest Ave., Montgomery.
Jackson, Benjamin Franklin, mc Vanderbilt 08, sb 07, 201 Montgomery St., Montgomery.
Jackson, B. Franklin, Jr., mc New York Univ. 36, recip. N. Y. 39, 201 Montgomery St., Montgomery.
Johnson, Claud, mc Vanderbilt 32, recip. Tenn. 38, 201 Montgomery St., Montgomery.
Johnson, Harald N., mc Univ. Neb. 33, NBE 42, 49 W. 49th St., New York.
Jones, John Allen, Jr., mc Emory 38, sb 38, 401 S. Court St., Montgomery.
Kaiser, Elias Noah, mc Long Island 32, recip. N. Y. 40, Box 1446, Montgomery.
Kirkpatrick, Milton Barnes, mc Tulane 96, cb Crenshaw 96, 201 Montgomery St., Montgomery.
Kocour, Elmer J., mc Univ. Ill. 33, recip. Ill. 45, 201 Montgomery St., Montgomery.
Lafferty, Charles R., mc LSU 34, recip. La. 40, St. Margaret's Hosp., Montgomery.
Laslie, Carney G., mc Baltimore 03, cb Macon 03, 203 Catoma St., Montgomery.
Laslie, J. Cobb, mc Johns Hopkins 33, recip. Md. 45, 203 Catoma St., Montgomery.
Leach, Charles Nelson, mc Leland Stanford 14, recip. Cal. 25, 49 West 49th St., New York.
Long, Daniel J., mc Ala. 16, sb 17, 515 Forest Ave., Montgomery.
Marrs, Theodore Clarke, mc Univ. Tenn. 40, recip. Tenn. 44, 17 Adams Avenue, Montgomery.
Martin, Farris J., mc Tulane 29, recip. Miss. 31, Montgomery.
Martin, John A., mc Vanderbilt 24, sb 24, 403 S. Court St., Montgomery.
McConnico, Frank Hawthorne, mc Tulane 99, cb Wilcox 99, 201 Montgomery St., Montgomery.
Meadows, Henry Howard, Jr., mc Washington Univ. 36, recip. Mo. 38, 201 Montgomery St., Montgomery. (S.)
Mertins, Paul S., Jr., mc Columbia Univ. P. & S. 33, Nat. Ex. Bd. 35, Bartlett Bldg., Montgomery.
Milligan, Rufus Lee, mc Univ. Nashville 03, cb Cullman 03, 201 Montgomery St., Montgomery.
Monsky, David B., mc Tulane 33, sb 33, 303 S. Hull St., Montgomery.
Mount, Bernard, mc Tulane 00, sb 06, 201 Montgomery St., Montgomery.
Newdorp, John, mc Rush 36, recip. Ill. 41, 312 W. Shawnee Dr., Montgomery. (S.)
Nickson, Hugh Clare, mc Univ. Louisville 32, recip. Mo. 35, 810 Washington Ave., Montgomery.
Nodine, Edwin R., mc Tulane 25, recip. N. Y. 37, 201 Montgomery St., Montgomery.
Parker, Chas. E. R., mc Vanderbilt 27, recip. Tenn. 29, 204 College Street, Montgomery.
Penton, John Randolph, mc Emory 14, sb 15, 201 Montgomery St., Montgomery.
Peters, George S., mc Temple Univ. 33, recip. Ohio 46, Veterans Hospital, Montgomery.
Pye, Alice Hill, mc N. Y. University 40, sb 40, 305 Church St., Montgomery.
Reynolds, Fred Dawson, mc Johns Hopkins 16, recip. Pa. 19, 203 Catoma St., Montgomery.
Riggs, Frank Willard, mc Univ. Va. 25, sb 25, 401 S. Court St., Montgomery.
Rosen, Herman L., mc Vanderbilt 34, recip. Tenn. 36, 310 Montgomery St., Montgomery. (S.)
Sawyer, Harold Paine, mc Johns Hopkins 00, recip. N. Y. 45, 519 Dexter Ave., Montgomery.
Selikoff, Solomon J., mc N. [illegible] Univ. 36, recip. N. Y. 46, Bell Building, Montgomery.
Shelton, Samuel Wayne, mc [illegible] Univ. Ark. 28, recip. Ark. 29, Kilby, Montgomery.

BOSTON SEP 22 1947 MEDICAL LIBRARY

Smith, J. Sam, mc Univ. Louisville 36, recip. Ky. 40, 4 Catoma St., Montgomery.
Smith, Walton H. Y., mc McGill 23, recip. Iowa 34, 519 Dexter Ave., Montgomery.
Stevenson, Forney Caldwell, mc P. & S. N. Y. 93, cb Calhoun 93, 531 S. Perry St., Montgomery.
Stickley, Courtney S., mc Va. 33, recip. Va. 35, 201 Montgomery St., Montgomery.
Stough, William Vesta, mc Ala. 07, cb 07, 201 Montgomery St., Montgomery.
Suggs, Samuel D., mc Ala. 05, cb 05, 310 Montgomery St., Montgomery.
Tankersley, William, mc Ky. 06, cb Crenshaw 06, Hope Hull.
Thigpen, Charles Alston, mc Tulane 88, cb Butler 88, 401 S. Court St., Montgomery.
Thigpen, Francis M., mc Tulane 34, recip. Minn. 40, 201 Montgomery St., Montgomery.
Thomas, Archie E., mc Vanderbilt 24, sb 24, 17 Adams Ave., Montgomery.
Thorington, Thomas Chilton, mc Tulane 94, cb 94, 10½ Court Square, Montgomery.
Trumper, Abraham, mc Jefferson 11, sb 12, 201 Montgomery St., Montgomery.
Van Wezel, Norman, mc Western Reserve 35, recip. Ohio 39, 17 Adams Avenue, Montgomery.
Waters, Hinton W., Jr., mc Tulane 42, sb 43, 201 Montgomery St., Montgomery.
Watkins, J. Harold, mc Tulane 27, sb 27, 401 S. Court St., Montgomery.
Weil, Clarence K., mc Columbia Univ. 23, sb 27, 119 Adams Ave., Montgomery.
Weinrib, Joseph, mc Long Is. 41, recip. N. Y. 46, Veterans Hospital, Montgomery.
Westcott, William B., mc P. & S. N. Y. 02, sb 02, 203 Catoma St., Montgomery.
Wilkerson, Fred Wooten, mc P. & S. N. Y. 09, sb 09, 206 Gilmer Ave., Montgomery.
Wilkerson, William Washington, mc Tulane 19, sb 19, 201 Montgomery St., Montgomery.
Wilkinson, Henry B., mc Univ. Va. 94, cb Tuscaloosa 96, Bishopville, S. C.
Willis, Chas. Alfred, mc Tulane 40, recip. La. 42, 119 Adams Ave., Montgomery.
Wilson, Robert Kemp, mc Univ. Ga. 28, NBE 37, 515 Forest Ave., Montgomery.
Wishik, Julian L., mc Long Is. 37, recip. N. Y. 45, 36 Clayton St., Montgomery.

Total 110

PHYSICIANS NOT MEMBERS

Adair, R. T. (col.), mc Amer. Missionary 10, sb 11, 208½ Monroe St., Montgomery.
Black, J. Henry, mc Ala. 05, sb 05, 12½ Dexter Ave., Montgomery.
Boyd, Lynn Matthews, mc Ala. 01, cb Macon 01, Waugh.
Garrett, James DeWitt, mc Tulane 12, sb 12, Veterans Hospital, Montgomery.
Long, Thos. F., mc Tulane 08, recip. La. 23, Veterans' Facility, Montgomery.
McLean, Jas. Neal, mc Tulane 98, cb Lowndes 99, Snowdoun.
Pettus, William Dean (col.), mc Meharry 34, recip. Tenn. 35, 292½ W. Jeff Davis Ave., Montgomery.
Ross, Freeland Floyd (col.), mc Howard 27, sb 27, 36½ N. Lawrence St., Montgomery.
Stokes, Ewel M., mc Atlanta P. & S. 14, sb 14, 12 Court Sq., Montgomery.
Tisdale, Raphael E. (col.), mc Meharry 43, recip. Tenn. 45, Montgomery.
Washington, William (col.), mc Meharry 06, cb Lowndes 06, 283 S. Jackson St., Montgomery.
Wilborn, Don (col.), mc Leonard 09, sb 10, 123½ Monroe St., Montgomery.
Wynn, Andrew Lee, mc Md. 89, cb Covington 03, Mt. Meigs Rd., Montgomery.

Total 13

(52) MORGAN COUNTY

Mobile 1876

President—F. L. Chenault ..... Decatur
Secretary-Treasurer—L. R. Murphree ..... Decatur
County Health Officer—L. R. Murphree ..... Decatur

Censors—A. J. Dinsmore, Chairman, Decatur; F. L. Chenault, Decatur; W. H. Lovelady, Hartselle; G. H. Nungester, Decatur.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Anderson, Walton H., mc Vanderbilt 18, recip. Tenn. 19, Decatur.
Barrett, Maurice E., mc Univ. Texas 31, recip. Texas 45, Decatur.
Block, William Henry, mc Tenn. 36, recip. Tenn. 37, Hartselle.
Bragg, Jno. C., mc Ala. 17, sb 17, Decatur.
Brindley, Thaddeus B., mc Georgia Eclectic 91, cb 00, Hartselle.
Burch, John T., mc Ala. 06, cb Lawrence 06, Hartselle.
Chenault, Erskine M., mc Vanderbilt 25, recip. Tenn. 26, Decatur.
Chenault, Frank L., mc Ala. 04, cb Lawrence 04, Decatur.
Chenault, John Murphy, mc Vanderbilt 42, NBE 44, Decatur. (S.)
Cleere, Ruel C., mc Ala. 09, sb 09, Danville.
Craig, William J., mc Tulane 25, recip. La. 37, Decatur.
Dinsmore, A. J., mc Chicago P. & S. 16, recip. Ill. 20, Decatur.
Greer, Hugh Dixon, mc Ala. 10, sb 10, Decatur.
Grosfeld, William J., mc Long Is. 21, sb N. Y. 36, Decatur.
Guyton, Thomas M., mc Vanderbilt 35, recip. Tenn. 38, Decatur.
Hamil, James Young, mc Ala. 16, sb 16, Decatur.
Howle, Jas. Augustus, mc Ala. 90, cb Elmore 90, Hartselle.
Hughes, J. W., mc Loyola 16, sb 17, Decatur.
Lovelady, William H., mc Ala. 97, cb 97, Hartselle.
Murphree, Lee Roy, mc Vanderbilt 23, sb 23, Decatur.
Nungester, Garrold H., mc Tulane 33, sb 33, Decatur.
Pitt, Charles K., mc Tulane 39, recip. La. 41, Children's Hosp., Dallas, Texas.
Roan, Avery M., mc Chicago M. & S. 14, sb 14, Decatur.
White, Arthur Marion, mc Ala. 09, sb 10, Hartselle.

Total 24

PHYSICIANS NOT MEMBERS

Baugh, Wendell Phillip, mc Louisville 11, recip. Tenn. 23, Decatur.
Booth, William M., mc Vanderbilt 02, cb Jackson 02, Hartselle.
Cashin, Newlyn E. (col.), mc Howard 08, sb 08, Decatur.
Sherard, Winston H. (col.), mc Meharry 08, recip. Ga. 25, Decatur.
Vinson, Noley H., mc Tulane 35, sb 36, Falkville.
Wiley, James B., mc Tenn. 32, recip. Tenn. 34, Decatur.

Total 6

(53) PERRY COUNTY

Montgomery 1875

President—T. J. Jones ..... Marion
Vice-President—J. V. Howell ..... Marion
Secretary-Treasurer—J. R. Long ..... Marion
County Health Officer—J. R. Long ..... Marion

Censors—S. A. Gordon, Chairman, Marion; M. H. Eskew, Uniontown; J. V. Howell, Marion; C. B. Robinson, Marion; T. J. Jones, Marion.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Dawson, James R., mc Vanderbilt 03, cb Jefferson 03, Uniontown.
Eskew, M. H., mc Univ. Va. 17, sb 17, Uniontown.
Gordon, Samuel A., mc Ala. 95, cb Lowndes 95, Marion.

Howell, John V., mc Tulane 21, sb 21, Marion.
Jones, Thomas J., mc Ala. 15, sb 18, Marion.
Long, John Reed, mc Tenn. 25, sb 25, Marion.
Robinson, Cornelius B., mc Louisville 92, cb Lowndes 92, Marion.
Wilkerson, Arthur F., mc Univ. Pa. 34, sb 36, Marion.
Total 8

PHYSICIANS NOT MEMBERS

None.

(54) PICKENS COUNTY
Eufaula 1878

President—L. C. Davis — Gordo
Vice-President—C. M. Murphy — Aliceville
Secretary-Treasurer—V. L. Ashcraft — Reform
County Health Officer—J. H. Ashcraft* — Carrollton

Censors—H. W. Hill, Chairman, Carrollton; V. L. Ashcraft, Reform; A. T. Kirk, Gordo, Rt. 2; C. M. Murphy, Aliceville; L. C. Davis, Gordo.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Ashcraft, Virgil Lee, mc Ala. 12, sb 12, Reform.
Davis, John Lewis, mc Vanderbilt 91, cb Tuscaloosa 91, Gordo.
Davis, Lewis Clifton, mc Emory 15, sb 15, Gordo.
Duncan, Wm. W., mc Ala. 00, cb Fayette 00, Aliceville.
Hill, Hugh Wilson, mc Ala. 04, cb 04, Carrollton.
Hill, William E., mc Univ. Louisville 43, recip. Ky. 46, Carrollton. (S.)
Kirk, Albert Thomas, mc Memphis Hosp. 02, cb 02, Gordo, Rt. 2.
Murphy, C. M., mc Ala. 98, cb Greene 98, Aliceville.
Parker, Sheffie Rufus, mc Ala. 09, sb 09, Aliceville.
Spruill, George Edward, mc Memphis Hosp. 01, cb 02, Ethelsville.
Wimberly, Gilbert B., mc Ala. 92, cb Lamar 92, Reform.
Total 11

PHYSICIANS NOT MEMBERS

Snoddy, Ephriam Alex, mc Ala. 97, cb Lamar 97, Aliceville.
Total 1

(55) PIKE COUNTY
Eufaula 1878

President—T. D. Cowles — Troy
Vice-President—W. P. Stewart — Troy
Secretary—H. M. Sacks — Troy
Treasurer—T. D. Cowles — Troy
County Health Officer—W. H. Abernethy — Troy

Censors—T. D. Cowles, Chairman, Troy; W. P. Stewart, Troy; W. B. Sanders, Troy; R. B. Beard, Troy; H. M. Sacks, Troy.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Abernethy, Wm. Henry, mc Ala. 09, sb 09, Troy.
Beard, Robert Briggs, mc Tulane 13, sb 13, Troy.
Beck, Chester Keith, mc Tenn. 34, recip. Tenn. 36, Troy.
Colley, James O., Jr., mc Tulane 34, recip. La. 35, Troy.
Cowles, Thomas DeWitt, mc Ala. 18, sb 18, Troy.
Edge, Oscar Nelson, mc P. & S. Atlanta 10, sb 10, Troy.
Grant, Charles Augustus, mc Tenn. 08, sb 12, Goshen.
Johnston, Francis Thomas, mc Ala. 20, sb 20, Brundidge.
Johnston, John David, mc P. & S. Atlanta 00, sb 01, Brundidge.
Killingsworth, Noah W., mc Tulane 25, sb 25, Brundidge.
Reynolds, Grover C., mc Tulane 11, sb 11, Brundidge.
Sacks, Herman M., mc Louisville 35, recip. Ky. 37, Troy.
Sanders, William Bryan, mc Atlanta Sou. 85, cb 85, Troy.
Stewart, William P., mc Tulane 32, recip. La. 35 Troy.
Total 14

PHYSICIANS NOT MEMBERS

None.

*See also Fayette County.

(56) RANDOLPH COUNTY
Eufaula 1878

President—C. E. Ford — Roanoke
Vice-President—J. R. Manley — Roanoke
Secretary-Treasurer—W. W. Stevenson — Roanoke
County Health Officer—J. R. Manley (Act.) — Roanoke

Censors—O. C. Mastin, Chairman, Wedowee; J. R. Manley, Roanoke; R. C. Lovvorn, Newell; J. T. Clack, Wadley; G. C. Ussery, Roanoke.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Bonner, Gerson W., mc Emory 31, sb 31, Roanoke.
Bonner, William Wallace, mc Atlanta Sou. 92, sb 92, Rock Mills.
Clack, J. Thos., mc Ala. 11, sb 11, Wadley.
Ford, Charles Edward, mc Atlanta 14, sb 14, Roanoke.
Gay, Andrew Jackson, mc Chicago M. & S. 13, sb 14, Roanoke.
Lovvorn, Robert C., mc Atlanta 12, sb 12, Newell.
Manley, John Radney, mc Memphis Hosp. 13, sb 20, Roanoke.
Mastin, Orville Charles, mc Detroit 86, sb 08, Wedowee.
Stevenson, William Worth, mc Ala. 03, cb 03, Roanoke.
Ussery, Gordon Clopton, mc Emory 19, recip. Ga. 22, Roanoke.
Total 10

PHYSICIANS NOT MEMBERS

Denny, Thomas H., mc Atlanta 15, sb 15, Wadley. (License revoked March 6, 1945.)
Swann, Joseph Charles, mc Ala. 90, cb 92, Wedowee.
Total 2

(57) RUSSELL COUNTY
Tuscaloosa 1887

President—R. C. Prather — Phoenix City
Secretary-Treasurer—R. B. McCann — Seale
County Health Officer—R. W. Todd — Phoenix City

Censors—R. C. Prather, Chairman, Phoenix City; R. B. McCann, Seale; S. J. Floyd, Phoenix City.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Floyd, Seth J., mc Tulane 25, recip. La. 26, Phoenix City.
McCann, Richard Bennett, mc Atlanta 11, sb 11, Seale.
Prather, Robert Clark, mc Ala. 98, cb 98, Phoenix City.
Total 3

PHYSICIANS NOT MEMBERS

Allen, Arthur Redding, mc Atlanta 97, cb 98, Fort Mitchell, RFD.
Brooks, Roland L., mc Atlanta 16, recip. Ga. 30, Phoenix City, Rt. 2.
Floyd, Ashby, mc Tulane 89, cb Lee 95, Phoenix City.
Kebe, George B. (col.), mc Meharry 38, recip. Tenn. 41, Phoenix City.
Todd, Robert W., mc Atlanta P. & S. 12, sb Ga. 12, Phoenix City.
Total 5

(58) SHELBY COUNTY

Birmingham 1877

President—Terrell Bridges ..... Montevallo
Vice-President—E. H. Sanders ..... Columbiana
Secretary-Treasurer—Willena Peck ..... Montevallo
County Health Officer—E. F. Sloan ..... Columbiana

Censors—J. H. Crawford, Chairman, Columbiana; J. I. Reid, Montevallo; E. F. Sloan, Columbiana; C. T. Acker, Montevallo; J. A. Hines, Siluria.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Acker, Charles Thomas, mc Ala. 00, cb 00, Montevallo.
Barnes, Everett Beck, mc Jefferson 42, sb 43, Boothton.
Bridges, Terrell, mc Ala. 15, sb 23, Montevallo.
Crawford, James H., mc Tulane 22, sb 22, Columbiana.
Curtis, Robert C., mc Memphis Hosp. 01, cb 01, Calera.
Embry, Jerre Carl, mc Atlanta 89, cb St. Clair 89, Vincent.
Eversole, William C., mc Univ. Va. 34, recip. Va. 36, Vincent.
Gould, Kenneth N., mc Louisville 31, recip. Ky. 36, Wilsonville.
Hines, John Allen, mc Tulane 21, sb 21, Siluria.
Hubbard, Leslie H., mc Washington Univ. 37, sb 37, Montevallo.
Park, Milton O., mc Vanderbilt 28, recip. Tenn. 37, Prichard.
Parnell, Leighton C., mc Tenn. 28, recip. Tenn. 29, Montevallo.
Peck, Willena, mc Woman's of Baltimore 00, sb 15, Montevallo.
Reid, John Inzer,mc Univ. Nashville 06, cb Blount 06, Montevallo.
Ryan, J. M., mc Ala. 15, sb 17, Helena.
Sanders, Elbert H., mc Tulane 41, sb 42, Columbiana.
Sloan, Elihu Frank, mc Emory 16, sb 16, Columbiana.
Total 17.

PHYSICIANS NOT MEMBERS

None.

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(59) ST. CLAIR COUNTY

Eufaula 1878

President—G. M. Malouf ..... Ashville
Vice-President—J. T. Roberson ..... Riverside
Secretary-Treasurer—J. A. Watson ..... Springville
County Health Officer—I. L. Connell ..... Ashville

Censors—G. M. Malouf, Chairman, Ashville; R. C. Bains, Springville; H. S. Awtrey, Ashville; R. A. Martin, Pell City; J. A. Watson, Springville.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Awtrey, Hobart S., mc Tulane 23, sb 23, Ashville.
Bains, Richard C., mc Ala. 98, cb 07, Springville.
Boggan, Jeff. M., mc Tulane 21, sb 22, Ragland.
Connell, Isee Lee, mc Univ. Chicago 29, recip. Ill. 31, Ashville.
Granger, Wayne H., mc Univ. Texas 41, recip. Texas 46, Pell City.
Malouf, George M., mc Univ. Vt. 28, recip. Vt. 45, Ashville.
Martin, Robert A., mc Vanderbilt 01, cb 01, Pell City.
Parker, Paul H., mc Tulane 37, recip. Miss. 40, Margaret.
Rennie, Thos. L., mc Tulane 19, sb 19, Pell City.
Roberson, John T., mc Ala. 03, cb 03, Riverside.
Watson, James Alex., mc Ala. 03, cb Jefferson 03, Springville.
Total 11

PHYSICIANS NOT MEMBERS

None

(60) SUMTER COUNTY

Mobile 1876

President—R. E. Hale ..... Bellamy
Vice-President—L. F. Jackson ..... Panola
Secretary-Treasurer—R. D. Spratt ..... Livingston
County Health Officer—S. J. Williams ..... Livingston

Censors—W. J. McCain, Chairman, Livingston; J. C. McDaniel, York; R. E. Hale, Bellamy; J. P. Scales, Livingston; R. D. Spratt, Livingston.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Byrne, David C., Jr., mc Ala. 09, sb 09, Bellamy.
Hale, Robert Eugene, mc Chattanooga 04, cb Cullman 04, Bellamy.
Harwood, Robert Ellyson, mc Ala. 00, cb 00, Gainesville.
Hester, Forest Lee, mc Tenn. 06, cb 06, Coatopa, RFD.
Hill, Robert Carl, mc Tulane 25, recip. La. 26, York.
Hunt, Horace C., mc Univ. Tenn. 32, recip. Tenn. 37, Livingston.
Jackson, C. A., mc Ala. 08, sb 08, York.
Jackson, Leonidas F., mc Ala. 01, cb Fayette 01, Panola.
McCain, William Jasper, mc Ala. 91, cb Mobile 91, Livingston.
McDaniel, Joseph Columbus, mc Ala. 04, cb 04, York.
Minus, J. A., mc Ala. 08, sb 08, Epes.
Scales, John Perkins, mc Louisville 97, cb 97, Livingston.
Spratt, Robert D., mc Tulane 02, cb 02, Livingston.
Williams, Sidney J., mc Vanderbilt 33, sb 34, Livingston.
Wrenn, W. J., mc Ala. 08, sb 08, Sumterville.
Total 15

PHYSICIANS NOT MEMBERS

Boyd, Austin Francis, mc Ala. 14, sb 14, Emelle.
Gibbs, Jesse Augustus, mc Ala. 07, cb 07, Gainesville.
Jones, Joseph Francis, mc Atlanta 01, cb 01, Cuba.
Total 3

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(61) TALLADEGA COUNTY

Anniston 1886

President—L. L. Terry ..... Sylacauga
Vice-President—S. D. Davis ..... Talladega
Secretary—A. F. Toole ..... Talladega
Treasurer—D. P. Dixon ..... Talladega
County Health Officer—J. H. Hill ..... Talladega

Censors—C. W. C. Moore, Chairman, Talladega; D. P. Dixon, Talladega; A. F. Toole, Talladega; S. D. Davis, Talladega; R. P. Stock, Childersburg.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Browne, W. Craig, mc Univ. Mich. 41, recip. Mich. 46, Sylacauga.
Cole, Leslie G., mc Tenn. 31, recip. Tenn. 32, Talladega.
Colvin, Gus Wilson, mc Tulane 27, recip. La. 28, Lincoln.
Craddock, French H., mc Tulane 12, sb 14, Sylacauga.
Craddock, French H., Jr., mc Tulane 39, recip. La. 40, Sylacauga.
Davis, Sumner D., mc Univ. Pa. 33, sb 36, Talladega.
Dixon, Duncan Patterson, mc Tulane 01, cb 01, Talladega.
Evans, Kenneth P., mc Rush 29, sb 30, Sylacauga.
Hill, James H., mc Ala. 09, sb 09, Talladega.
Moore, Carey W. C., mc Ala. 13, sb 14, Talladega.
Nickerson, Paul, mc Tulane 31, sb 31, Sylacauga.
Owings, Thomas L., mc Emory 24, sb 24, Sylacuaga.
Pitchford, John D., mc Emory 22, sb 22, Sylacauga.
Pohl, William F., mc Jefferson 23 recip. Pa. 45 Sycamore.
Salter, Clarence L., mc Ala. 11, sb 11, Talladega.
Sherman, Morris, mc LSU 40, recip. La. 41, Sylacauga.
Sims, James Anthony, mc Univ. Nashville 07, cb 07, Renfroe.

Stewart, Roscoe C., mc Ala. 13, sb 14, Sylacauga.
Stock, Robert Paul, mc S. C. 28, sb 28, Childersburg.
Teague, Eldred B., mc Pa. 34, recip. Pa. 36, Talladega.
Terry, Lucius Lamar, mc Tenn. 16, sb 16, Sylacauga.
Toole, Arthur F., mc Harvard 35, recip. Pa. 39, Talladega.
Warwick, Bishop B., mc Tulane 02, cb 02, Talladega.
Washam, Marvin, mc Tulane 23, sb 23, Talladega.
Whetstone, A. K., mc Ala. 14, sb 14, Sylacauga.
Winslow, Robert C., mc Univ. Kansas 35, recip. Kansas 36, Sylacauga.
Wren, Edward Bates, mc Ala. 90, cb 90, Talladega.
Total 27

PHYSICIANS NOT MEMBERS

Brooks, Alpheus Olin, mc Atlanta 87, cb Clay 87, Lincoln, Rt. 1 (Retired).
Brothers, Warren H. (col.), mc Meharry 08, sb 08, Talladega.
Jeter, Marvin L., mc Emory 25, sb 26, Sylacauga.
Johantgen, James F., mc Univ. Mich. 25, recip. Mich. 41, Talladega.
Jones, Elisha Henry (col.), mc Univ. West Tenn. 09, sb 09, Talladega.
Jones, Wade Anthony (col.), mc Denver Homeopathic 01, recip. Col. 38, Sylacauga.
Kelly, J. P. (col.), mc Howard 33, sb 34, Talladega.
Total 7

(62) TALLAPOOSA COUNTY
Selma 1879

President—Lucian Newman ..... Dadeville
Vice-President—J. E. Walker ..... E. Tallassee
Secretary-Treasurer—L. H. Hamner ..... Dadeville
County Health Officer—L. H. Hamner ..... Dadeville

Censors—J. L. Denney, Chairman, Alexander City; J. E. Walker, E. Tallassee; J. A. Chapman, Alexander City; J. T. Banks, Dadeville; J. E. Cameron, Alexander City.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Askin, Henry Ernest, mc Tulane 36, recip. La. 37, Alexander City.
Banks, Joseph Todd, mc Atlanta P. & S. 13, sb 13, Dadeville.
Bennett, J. L., mc Univ. Tenn. 31, recip. Tenn. 40, E. Tallassee.
Cameron, James E., mc Tulane 30, sb 31, Alexander City.
Chapman, James A., mc Ala. 05, cb 05, Alexander City.
Denney, John Lofton, mc Emory 21, sb 21, Alexander City.
Foshee, Reuben A., mc Ala. 07, cb 07, Alexander City, Rt. 5.
Hamner, Harper Taliaferro, mc Vanderbilt 89, cb Chambers 90, Camp Hill.
Hamner, Lewis Herschel, mc Vanderbilt 16 sb 16, Dadeville.
Hodge, Emory K., mc Atlanta 09, sb 09, Daviston.
Lamberth, Wade C., mc Wash. Univ. 35, recip. Mo. 36, Alexander City.
Newman, Lucian, mc Tenn. 31, sb 31, Dadeville. (S.)
Walker, James Elliott, mc Louisville 36, recip. Ky. 41, E. Tallassee.
Walls, J. J., mc Ala. 16, sb 16, Alexander City.
Total 14

PHYSICIANS NOT MEMBERS

None

(63) TUSCALOOSA COUNTY
Birmingham 1877

President—N. H. Reim ..... Tuscaloosa
Vice-President—C. L. Brook ..... Tuscaloosa
Secretary-Treasurer—W. J. Donald ..... Tuscaloosa
County Health Officer—W. J. Donald ..... Tuscaloosa

Censors—J. S. Tarwater, Chairman, Tuscaloosa; Ruby E. L. Tyler, Tuscaloosa; S. T. Hardin, Tuscaloosa; O. L. Jordan, Tuscaloosa; J. W. Wilson, Tuscaloosa.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Abbott, Chas. E., Jr., mc Tulane 22, sb 22, Tuscaloosa.
Anderson, William D., mc George Washington Univ. 28, sb 29, Tuscaloosa.
Bealle, James S., mc Univ. Nashville 06, cb 06, Tuscaloosa.
Booth, James L., mc Ala. 11, sb 11, Northport.
Brook, Clarence L., mc Tulane 38, recip. La. 40, Tuscaloosa.
Christian, James S., mc Ala. 12, sb 12, Tuscaloosa (Alberta City).
Clements, Ralph M., mc Rush 30, sb 32, Tuscaloosa.
Cochrane, Robert H., Jr., mc Tulane 29, sb 29, Tuscaloosa.
Collier, James P., mc Tulane 29, sb 29, Tuscaloosa.
Conwill, Gratton B., mc Tulane 26, sb 26, Tuscaloosa.
Davis, Luther, Jr., mc Wash. Univ. 34, sb 36, Tuscaloosa.
Donald, William J., mc Tenn. 26, sb 28, Tuscaloosa.
Faulk, William Mark, mc Ala. 97, cb Barbour 97, Tuscaloosa.
Fitts, Alston, mc P. & S. N. Y. 95, cb 00, Tuscaloosa.
Forney, J. M., mc Rush 26, sb 28, Tuscaloosa.
Goode, J. Henry, mc Tulane 26, sb 26, Tuscaloosa.
Graves, Stuart, mc Syracuse 11, recip. Ky. 28, University.
Guin, James C., Sr., mc Univ. Nashville 09, sb 09, Moores Bridge.
Guin, James C., Jr., mc Long Island 38, sb 40, Tuscaloosa.
Hall, George W., mc Ala. 14, sb 15, Northport.
Hamilton, S. G., mc Ala. 02, cb Elmore 02, Tuscaloosa.
Hardin, Samuel T., mc Ala. 14, sb 14, Tuscaloosa.
Johnson, Chester Earle, Jr., mc Univ. Col. 31, sb 31, Tuscaloosa.
Jordan, Otis Leon, mc LSU 34, recip. La. 35, Tuscaloosa.
Kennedy, Jacob Jenkins, mc Washington Univ. 98, recip. Mo. 30, Tuscaloosa.
Kirk, Arthur A., mc Ala. 97, cb Pickens 97, Tuscaloosa.
Lawrence, Toombs, mc Ala. 12, sb 12, Tuscaloosa.
Leach, Sydney, mc Univ. Va. 96, cb 97, Tuscaloosa.
Majors, W. B., mc Tulane 22, sb 23, Tuscaloosa. (S.)
Maxwell, Joseph Alston, mc Tulane 12, sb 09, Tuscaloosa.
Mayfield, Peabody B., mc Tenn. 29, sb 30, Tuscaloosa.
Minot, Dobbs, mc Tulane 35, sb 35, Tuscaloosa.
Moody, Maxwell, mc Tulane 13, sb 14, Tuscaloosa.
Oliver, John T., mc Tenn. 26, recip. Tenn. 27, Tuscaloosa.
Partlow, Rufus C., mc Ala. 12, sb 13, Tuscaloosa.
Partlow, William D., mc Ala. 01, cb St. Clair 01, Tuscaloosa.
Patton, Thomas Herbert, Jr., mc Tulane 41, sb 41, Tuscaloosa.
Price, Earl Sanders, mc Emory 16, sb 16, Tuscaloosa.
Reim, Norman H., mc Univ. Tenn. 37, recip. Tenn. 42, Tuscaloosa.
Searcy, Harvey Brown, mc Univ. Mich. 07, cb 07, Tuscaloosa.
Shamblin, James Roscoe, mc Tulane 28, sb 29, Tuscaloosa.
Shamblin, John L., mc Emory 23, sb 23, Tuscaloosa.
Shamblin, R. Dawson, mc LSU 33, recip. La. 36, Tuscaloosa.
Shamblin, W. Grover, mc Ala. 19, sb 19, Tuscaloosa.
Shirley, Joseph Emil, mc Ala. 09, cb 10, Tuscaloosa.
Tarwater, James S., mc Tenn. 23, sb 23, Tuscaloosa.
Tatum, Albert F., Jr., mc Tulane 44, sb 45, Tuscaloosa.
Tyler, Ruby E. L., mc Tulane 25, recip. Miss. 30, Tuscaloosa.
Walker, Audiss M., mc Ala. 11, sb 11, Tuscaloosa.
Wilson, John W., mc Vanderbilt 03, cb Dallas 03, Tuscaloosa.
Total 50.

PHYSICIANS NOT MEMBERS

Donehoo, John H., mc Memphis Hosp. 99, cb Pickens 05, Abernant.
Hausman, Christopher Pfeiffer, mc Ala. 10, sb 10, Coaling.

Mayfield, Surry F., mc Tulane 96, cb 96, Tuscaloosa.
McKenzie, Andrew B. (col.), mc Leonard 12, sb 12, Tuscaloosa.
Smothers, Robt. E. L., mc Ala 97, cb Lamar 03, Northport.
Total 5

(64) WALKER COUNTY
Mobile 1876

President—J. K. Taggard ..... Jasper
Vice-President—T. J. Payne, Jr. ..... Jasper
Secretary-Treasurer—J. L. Sowell ..... Jasper
County Health Officer—A. M. Waldrop ..... Jasper

Censors—J. C. Gladney, Chairman, Jasper; H. J. Sankey, Nauvoo; J. L. Sowell, Jasper; L. M. Walker, Jasper; A. C. Jackson, Jasper.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Andrew, James, mc Ga. 22, recip. Ga. 25, Cordova.
Baker, Reginald William, mc LSU 35, recip. La. 36, Dora.
Ballard, Asa Elwyn, mc Pulte 02, cb Jefferson 02, Empire.
Camp, Joseph S., mc Tulane 31, recip. La. 33, Jasper.
Donaldson, Bailus E., mc Tenn. 15, sb 26, Carbon Hill.
Gladney, James C., mc Jefferson 24, recip. Pa. 26, Jasper.
Gwin, Paul Eugene, mc Tulane 06, cb Jefferson 06, Sumiton.
Jackson, A. C., mc Tulane 16, sb 19, Jasper.
Jones, Giles W., mc Grant 01, cb 08, Parrish.
Lovett, W. J., mc Ala. 09, sb 10, Sipsey.
Payne, Thos. J., Jr., mc Tulane 35, recip. La. 36, Jasper.
Sankey, Howard J., mc Ala. 01, cb Choctaw 01, Nauvoo.
Shepherd, Robert H., mc Ala. 10, sb 10, Jasper.
Sherer, Raymond J., mc Univ. Tenn. 32, recip. Tenn. 34, 414 Med. Arts Bldg., Birmingham.
Shores, Sterling S., Jr., mc Ala. 13, sb 14, Carbon Hill.
Simpson, John Wesley, mc Memphis 13, sb 22, Parrish.
Smith, Merle E., mc Nebraska 29, sb 30, Parrish. (S.)
Snow, William R., mc Chattanooga 08, sb 13, Jasper.
Sowell, James Lawrence, mc Tulane 91, cb Monroe 91, Jasper.
Taggart, John K., Jr., mc Univ. Va. 37, recip. Va. 45, Jasper.
Taylor, Charter Howard, mc Ala. 18, sb 19, Bankhead.
Thetford, J. Dimmick, mc Duke 39, NBE 41, America.
Waldrop, Allen Marion, mc Univ. South 08, sb 09, Jasper.
Walker, L. M., mc Ala. 11, sb 11, Jasper.
Watkins, Homer Stribling, mc Tenn. 37, sb 38, Coal Valley.
Total 25

PHYSICIANS NOT MEMBERS

Blanton, Frank, mc Grant 03, cb 06, Saragossa.
Busby, Elias D., mc Ala. 10, sb 11, Parrish, Rt. 1.
Manasco, Titus, mc Memphis 97, cb 97, Carbon Hill.
Owen, Herndon G., mc Ala. 08, sb 08, Quinton, Rt. 2.
Total 4

(65) WASHINGTON COUNTY
Tuscaloosa 1887

President—W. E. Kimbrough ..... Chatom
Secretary-Treasurer—W. J. Blount ..... Millry
County Health Officer—T. M. Littlepage* (Act.) Chatom

Censors—W. J. Blount, Chairman, Millry; W. E. Kimbrough, Chatom.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Blake, William A., mc Emory 38, sb 38, 1958 St. Stephens Rd., Mobile.
Blount, William James, mc Ala. 10, sb 10, Millry.
Kimbrough, William E., Jr., mc Ala. 15, sb 15, Chatom.
Total 3

PHYSICIANS NOT MEMBERS

None

*See also Choctaw County.

(66) WILCOX COUNTY
Eufaula 1878

President—P. E. Godbold ..... Pine Hill
Vice-President—R. E. Dixon ..... Alberta
Secretary-Treasurer—J. Paul Jones ..... Camden
County Health Officer—E. L. McIntosh ..... Camden

Censors—Walter Fudge, Chairman, Lamison; J. Paul Jones, Camden; J. A. Thompson, Pine Apple; P. E. Godbold, Pine Hill; R. E. Dixon, Alberta.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Burson, Ellis G., mc Ala. 06, cb Monroe 06, Furman.
Dixon, Robert Emmett, mc Ala. 17, sb 17, Alberta.
Fudge, Walter, mc Ala. 09, sb 09, Lamison.
Godbold, Percy E., mc P. & S. Atlanta 02, cb Marengo 02, Pine Hill.
Jones, J. Paul, Jr., mc Tulane 19, sb 19, Camden.
Mayer, Kossuth A., mc Memphis Hosp. 00, cb 00, Lower Peach Tree.
McIntosh, E. L., mc Atlanta 02, cb 02, Camden.
Moore, Will W., mc Vanderbilt 96, cb 96, Camden.
Speir, Ross C., mc Univ. Louisville 08, sb 08, Box 940, Jackson, Miss.
Thompson, John A., mc Ark. 31, sb 32, Pine Apple.
Total 10

PHYSICIANS NOT MEMBERS

McClurkin, William N., mc Ala. 17, sb 18, McWilliams, Rt.
Total 1

(67) WINSTON COUNTY
Montgomery 1888

President—C. A. Olivet ..... Haleyville
Vice-President—T. M. Blake ..... Double Springs
Secretary-Treasurer—R. Lee Hill ..... Haleyville
County Health Officer—T. M. Blake (Act.) Double Spgs.

Censors—C. A. Olivet, Chairman, Haleyville; W. M. Godsey, Haleyville; R. F. Blake, Haleyville; R. Lee Hill, Haleyville; W. E. Howell, Haleyville.

NAMES OF MEMBERS WITH THEIR COLLEGES AND POSTOFFICES

Blake, Robert F., mc Tenn. 38, recip. Tenn. 40, Haleyville.
Blake, Thomas M., mc Tenn. 42, recip. Tenn 43, Double Springs.
Godsey, Wash M., mc Tenn. 29, sb 30, Haleyville.
Hill, Robert Lee, mc Ala. 09, sb 09, Haleyville.
Howell, William Edward, mc Ala. 00, cb 00, Haleyville.
Manasco, Hobson, mc Vanderbilt 39, recip. Tenn. 40, Haleyville.
Mitchell, John Ira, mc Ala. 12, sb 13, Haleyville.
Olivet, Charles Alonzo, mc Univ. Nashville 06, cb 06, Haleyville.
Total 8

PHYSICIANS NOT MEMBERS

None.

INDEX OF MEMBERS 1946

(S.) indicates that the physician is in the service of his country

Name	Town and County
Abbott, C. E., Jr.	Tuscaloosa—Tuscaloosa
Abercrombie, H. S.	Petrey—Crenshaw
Abernathy, T. P.	Moundville—Hale
Abernethy, W. H.	Troy—Pike
Abernethy, W. L.	Flomaton—Escambia
Abrams, M. J.	Montgomery—Montgomery
Acker, C. T.	Montevallo—Shelby
Acker, P. J. M.	Mobile—Mobile
Adams, G. W.	Huntsville—Madison
Adams, J. B.	Eufaula—Barbour
Adams, M. S.	Anniston—Calhoun
Adams, M. Vaun	Mobile—Mobile
Akin, J. M.	Birmingham—Jefferson
Alexander, W. W.	Florence—Lauderdale
Alford, O. T.	Birmingham—Jefferson
Alison, J. F.	Selma—Dallas
Alison, S. B.	Minter—Dallas
Allen, J. W.	Dothan—Houston
Allen, R. H.	Silas—Choctaw
Allen, W. E.	Sweet Water—Marengo
Allgood, H. W.	Fairfield—Jefferson
Allison, G. M.	Gallion—Hale
Amendola, A. A.	Mobile—Mobile
Anderson, B. F.	Sellers—Montgomery
Anderson, H. L.	Fayette—Fayette
Anderson, M. N.	Birmingham—Jefferson
Anderson, T. J.	Greensboro—Hale
Anderson, William	Glencoe, Rt. 2—Etowah
Anderson, W. D.	Tuscaloosa—Tuscaloosa
Anderson, W. H.	Decatur—Morgan
Anderson, W. O.	Gadsden—Etowah
Andress, D. G.	Madrid—Houston
Andrew, James	Cordova—Walker
Andrews, N. L.	Birmingham—Jefferson
Anthony, J. C.	Birmingham—Jefferson
Applebaum, S. L.	Birmingham—Jefferson
Appleton, T. H.	Collinsville—DeKalb
Argo, Eugene	Goodwater—Coosa
Argo, J. R.	Tarrant—Jefferson
Armistead, J. R.	Prichard—Mobile
Armour, W. S.	Birmingham—Jefferson
Armstrong, J. H.	Selma—Dallas
Ashcraft, J. H.	Fayette—Fayette
Ashcraft, V. L.	Reform—Pickens
Ashworth, R. F.	Fairfield—Jefferson
Askew, William	Auburn—Lee
Askin, H. E.	Alexander City—Tallapoosa
Atwood, A. L.	Birmingham—Jefferson
Austin, B. F.	Montgomery—Montgomery
Auston, P. W.	Shawmut—Chambers
Awtrey, H. S.	Ashville—St. Clair
Bains, R. C.	Springville—St. Clair
Baker, R. D.	Birmingham—Jefferson
Baker, R. W.	Dora—Walker
Ballard, A. E.	Empire—Walker
Banks, J. T.	Dadeville—Tallapoosa
Barber, W. J.	Butler—Choctaw
Barclift, W. C., Jr.	Birmingham—Jefferson
Barelare, Bruno, Jr.,	Birmingham—Jefferson
Barker, H. E.	Boaz—Marshall
Barnard, R. M.	Arab—Marshall
Barnes, E. B.,	Boothton—Shelby
Barnes, J. M.	Montgomery—Montgomery
Barnes, R. G.	Birmingham—Jefferson
Barrett, M. E.	Decatur—Morgan
Barron, J. M.	Fairfield—Jefferson
Bartlett, H. S.	Montgomery—Montgomery
Bass, H. W.	Gadsden—Etowah
Bass, J. B.	Gadsden—Etowah
Bates, I. C.	Dothan—Houston
Batson, W. P.	Fairfield—Jefferson
Baumhauer, C. A.	Mobile—Mobile
Baumhauer, J. H.	Mobile—Mobile
Bayles, Lewis E.	Anderson—Lauderdale
Bayles, Louie E.	Anderson—Lauderdale
Bayne, R. D.	Selma—Dallas
Bazar, P. S. (S.)	Montgomery—Montgomery
Bealle, J. S.	Tuscaloosa—Tuscaloosa
Beard, R. B.	Troy—Pike
Beasley, J. W.	Geneva—Geneva
Beatty, T. D.	Cullman—Cullman
Beck, C. K.	Troy—Pike
Becton. J. A.	Birmingham—Jefferson
Beddow, W. H.	Birmingham—Jefferson
Bedsole, J. G.	Jackson—Clarke
Bell, J. M.	Mobile—Mobile
Belue, J. O.	Athens—Limestone
Benkwith, K. B.	Montgomery—Montgomery
Bennett, C. R.	Eufaula—Barbour
Bennett, J. L.	E. Tallassee—Tallapoosa
Bennett, T. L., Jr.	Florence—Lauderdale
Bennett, W. D.	Montgomery—Montgomery
Benson, R. C. (S.)	Birmingham—Jefferson
Berrey, I. C.	Birmingham—Jefferson
Berrey, R. R.	Birmingham—Jefferson
Berry, R. A.	Birmingham—Jefferson
Berry, W. T.	Birmingham—Jefferson
Best, R. L.	Bessemer—Jefferson
Bickerstaff, J. W.	Montgomery—Montgomery
Bilbro, G. W.	Gadsden—Etowah
Bird, B. C.	Montgomery—Montgomery
Bishop, Brooks	Margaret—See Jefferson
Black, J. W.	Ensley, Birmingham—Jefferson
Blackburn, C. H.,	Birmingham—Jefferson
Blackshear, G. W.	Opelika—Lee
Blair, E. S.	Gadsden—Etowah
Blake, R. F.	Haleyville—Winston
Blake, Theo. M.	Toulminville—Mobile
Blake, Thos. M.	Double Springs—Winston
Blake, W. A.	Mobile—See Washington
Blake, W. H., Jr.	Sheffield—Colbert
Blakeney, A. L.	Newtonville—Fayette
Blank, W. H.	Birmingham—Jefferson
Blanton, Russell	Birmingham—Jefferson
Block, W. H.	Hartselle—Morgan
Blount, W. J.	Millry—Washington
Blue, Jas. H.	Bessemer—Jefferson
Blue, Jno. H.	Montgomery—Montgomery
Bobo, A. H.	Demopolis—Marengo
Bobo, J. E.	Gadsden—Etowah
Boggan, Jeff	Ragland—St. Clair
Boggs, L. K.	Birmingham—Jefferson
Bograd, Nathan	Montgomery—Montgomery
Bohorfoush, J. G.	Birmingham—Jefferson
Bondurant, E. D.	Mobile—Mobile
Bonner, G. W.	Roanoke—Randolph
Bonner, W. W.	Rock Mills—Randolph
Booth, B. W.	Shorter—Macon
Booth, J. L.	Northport—Tuscaloosa
Boozer, T. S.	Montgomery—Montgomery
Botta, L. P.	Ensley, Birmingham—Jefferson
Boudreau, F. T.	Mobile—Mobile
Boulware, T. M.	Birmingham—Jefferson
Bowman, J. L.	Montgomery—Montgomery
Box, T. T.	Ensley, Birmingham—Jefferson
Box, W. L.	Sulligent, Rt. 2—Lamar
Boyd, F. H.	Opelika—Lee
Brackin, O. D.	Tuscumbia—Colbert
Bradford, D. C.	Birmingham—Jefferson
Bragg, E. G.	Victoria (Mail Jack)—Coffee
Bragg, J. C.	Decatur—Morgan
Branch, J. L.	Montgomery—Montgomery
Brannon, R. M.	Birmingham—Jefferson

Name	Town and County
Brannon, W. T.	Montgomery—Montgomery
Branscomb, Louise	Birmingham—Jefferson
Branyon, A. C.	Fayette—Fayette
Braswell, W. C.	Elba—Coffee
Brice, J. A.	Tarrant—Jefferson
Bridges, Terrell	Montevallo—Shelby
Brindley, T. B.	Hartselle—Morgan
Bristow, B. T.	Bessemer—Jefferson
Britt, W. S., Jr.	Eufaula—Barbour
Britton, J. W.	Foley—Baldwin
Britton, W. R.	Montgomery—Montgomery
Broach, N. L.	Pine Level—Montgomery
Brook, C. L.	Tuscaloosa—Tuscaloosa
Brooks, J. O.	Hamilton—Marion
Brooks, O. J.	Huntsville—Madison
Broughton, W. E.	Perdue Hill—Monroe
Browder, E. A.	Stevenson—Jackson
Brown, A. J.	Mobile—Mobile
Brown, E. T.	Cleveland—Blount
Brown, H. M.	Birmingham—Jefferson
Brown, J. L.	Gadsden—Etowah
Brown, J. M.	Gadsden—Etowah
Brown, James Rias	Bexar, Rt. 1—Marion
Brown, John Richard	Florence—Lauderdale
Brown, L. L.	Mobile—Mobile
Brown, M. W.	Birmingham—Jefferson
Browne, W. C.	Sylacauga—Talladega
Brownlee, L. G.	Birmingham—Jefferson
Bruce, B. S.	Opelika—Lee
Brunson, E. T.	Samson—Geneva
Bryan, J. L.	Greenville—Butler
Buchanan, J. P.	Montgomery—Montgomery
Burch, J. T.	Hartselle—Morgan
Burdeshaw, H. B.	Dothan—Houston
Burdeshaw, S. L.	Headland—Henry
Buresch-Henke, H.	Montgomery—Montgomery
Burke, R. P.	Montgomery—Montgomery
Burkett, W. T.	Dothan—Houston
Burkhead, DeWitt	Opelika—Lee
Burleson, J. R.	Hamilton—Marion
Burns, C. R. D.	Alabama City—Etowah
Burns, J. D.	Russellville—Franklin
Burns, W. A.	Birmingham—Jefferson
Burrett, J. B.	Birmingham—Jefferson
Burson, E. G.	Furman—Wilcox
Burwell, P. K.	Montgomery—Montgomery
Busby, S. S.	Hamilton—Marion
Bush, D. A.	New Brockton—Coffee
Bush, J. D., Jr.	Birmingham—Jefferson
Buzbee, J. E.	Ft. Payne—DeKalb
Byrne, D. C., Jr.	Bellamy—Sumter
Caffey, B. F.	Choccolocco—Calhoun
Caine, V. H.	Orrville—Dallas
Caldwell, E. V.	Huntsville—Madison
Caldwell, H. A.	Birmingham—Jefferson
Caldwell, S. W.	Huntsville—Madison
Callaway, Eugene	Selma—Dallas
Callaway, R. R.	Birmingham—Jefferson
Cameron, J. E.	Alexander City—Tallapoosa
Cameron, T. C.	Faunsdale—Marengo
Camp, J. S.	Jasper—Walker
Camp, W. A.	Fairfield—See Cullman
Campbell, D. J.	Dozier, RFD—Covington
Campbell, H. A.	Gadsden—Etowah
Campbell, J. A.	Dothan—Houston
Campbell, W. J.	Center—Cherokee
Cannady, N. B.	Dothan—Houston
Cannon, D. L.	Montgomery—Montgomery
Cannon, E. R.	Vredenburgh—Monroe
Cantrell, W. T.	Alabama City—Etowah
Carmichael, J. L.	Birmingham—Jefferson
Carmichael, J. N.	Fairfield—Jefferson
Carmichael, W. M.	Fairfield—Jefferson
Carpenter, B. S.	Fairfield—Jefferson
Carpenter, J. A.	New Hope—Madison
Carpenter, J. L.	New Hope—Madison
Carraway, Alfred	Gadsden—Etowah
Carraway, B. M.	Birmingham—Jefferson
Carraway, C. N.	Birmingham—Jefferson
Carter, H. R., Jr.	Birmingham—Jefferson
Carter, Melson B.	Birmingham—Jefferson
Carter, W. R.	Repton—Conecuh
Casey, A. E.	Birmingham—Jefferson
Casey, M. L.	Henagar—DeKalb
Cashman, G. A.	Florence—Lauderdale
Cawthon, E. W.	Plateau—Mobile
Cermak, E. C.	Birmingham—Jefferson
Chalker, B. C.	Dothan—Houston
Chandler, J. R.	Bessemer—Jefferson
Chapman, C. H.	Andalusia—Covington
Chapman, F. E.	Montgomery—Montgomery
Chapman, J. A.	Alexander City—Tallapoosa
Chapman, J. C.	Birmingham—Jefferson
Chapman, J. P.	Selma—Dallas
Chapman, L. W.	Jackson—Clarke
Chapman, W. S.	Jackson—Clarke
Chason, O. L.	Mobile—Mobile
Cheatham, T. A.	Birmingham—Jefferson
Chenault, E. M.	Decatur—Morgan
Chenault, F. L.	Decatur—Morgan
Chenault, J. M. (S.)	Decatur—Morgan
Cheney, H. W.	Florence—Lauderdale
Chenoweth, Beach	Birmingham—Jefferson
Cherry, Alfred	Birmingham—Jefferson
Chilton, A. M.	Anniston—Calhoun
Chipps, H. D. (S.)	Birmingham—Jefferson
Chisolm, J. R.	Marion Junction—Dallas
Chisolm, J. S.	Selma—Dallas
Chisolm, R. P.	Selma, Rt. 4—Dallas
Christian, J. S.	Alberta City (Mail Tuscaloosa)—Tusca.
Clack, J. T.	Wadley—Randolph
Clanton, A. W.	Millport—Lamar
Clark, H. G. (S.)	Clayton—Barbour
Clark, R. D.	Gadsden—Etowah
Clarke, N. R. (S.)	Mobile—Mobile
Clayton, E. C.	Leeds—Jefferson
Clayton, Price	Russellville—Franklin
Cleere, R. C.	Danville—Morgan
Clements, F. H.	Birmingham—Jefferson
Clements, R. M.	Tuscaloosa—Tuscaloosa
Clemmons, L. H.	Brewton—Escambia
Cleveland, C. H.	Anniston—Calhoun
Cleveland, C. M.	Mobile—Mobile
Cleveland, Hunt	Anniston—Calhoun
Climo, H. J.	Montgomery—Montgomery
Cloud, R. E.	Ensley, Birmingham—Jefferson
Cloyd, T. D.	Florence—Lauderdale
Clyde, W. A.	Birmingham—Jefferson
Cobb, W. F.	Frisco City—Monroe
Cobbs, B. W.	Montgomery—Montgomery
Cochrane, R. H.	Tuscaloosa—Tuscaloosa
Cocke, W. T.	Demopolis—Marengo
Cogburn, H. R.	Mobile—Mobile
Cohen, N. R.	Montgomery—Montgomery
Cole, L. G.	Talladega—Talladega
Coleman, G. C.	Fairfield—Jefferson
Coleman, L. S.	Millport—Lamar
Coleman, W. E.	Birmingham—Jefferson
Colley, J. O., Jr.	Troy—Pike
Collier, J. P.	Tuscaloosa—Tuscaloosa
Collier, S. W.	Birmingham—Jefferson
Collins, C. D.	Birmingham—Jefferson
Collins, H. C.	Montgomery—Montgomery
Collins T. A.	Birmingham—Jefferson
Colquitt, C. J.	Bessemer—Jefferson
Colvin, G. W.	Lincoln—Talladega
Comer, E. T.	Eufaula—Barbour
Comer, R. T.	Birmingham—Jefferson
Compton, W. W.	Fairfield—Jefferson
Connell, I. L.	Ashville—St. Clair
Constantine, K. W.	Palm Beach Fla.—See Jefferson

Name	Town and County
Conwell, H. E.	Birmingham—Jefferson
Conwill, G. B.	Tuscaloosa—Tuscaloosa
Cooley, B. S.	Birmingham—Jefferson
Copeland, M. A.	Birmingham—Jefferson
Cornelius, L. B.	Cullman, Rt. 5—Cullman
Cornwell, R. A. (S.)	Birmingham—Jefferson
Corrington, D. D.	Tallassee—Elmore
Coston, R. M.	Birmingham—Jefferson
Cothran, R. M.	Birmingham—Jefferson
Cotlin, C. S.	Wetumpka—Elmore
Cotton, S. F.	Lexington—Lauderdale
Couch, E. H.	Guntersville—Marshall
Cowden, A. M.	Crichton—Mobile
Cowles, A. D.	Ramer—Montgomery
Cowles, T. D.	Troy—Pike
Cowles, W. L.	Shawmut—Chambers
Cox, D. D.	Sheffield—Colbert
Coyle, D. J.	Birmingham—Jefferson
Craddock, French	Sylacauga—Talladega
Craddock, F. H., Jr.	Sylacauga—Talladega
Craig, W. J.	Decatur—Morgan
Crawford, J. H.	Columbiana—Shelby
Crawford, J. M.	Arab—Marshall
Crawford, R. D., Jr.	Dothan—Houston
Crelly, H. C.	Birmingham—Jefferson
Crook, W. R.	Elba—Coffee
Cross, E. H., Jr.	Gadsden—Etowah
Crowder, J. W.	West Blocton—Bibb
Crutcher, J. S., Jr.	Athens—Limestone
Culpepper, R. A.	Cullman—Cullman
Cunningham, J. A.	Birmingham—Jefferson
Cunningham, W. A.	Birmingham—Jefferson
Curtis, R. C.	Calera—Shelby
Dabney, M. Y.	Birmingham—Jefferson
Dahlberg, Leora P.	Fairhope—Baldwin
Dailey, J. J.	Tunnel Springs—Monroe
Dale, S. C.	Birmingham—Jefferson
Daly, E. W.	Birmingham—Jefferson
Daniel, W. A., Jr.	Montgomery—Montgomery
Darby, H. A.	Athens—Limestone
Darden, W. H.	Pratt City, Birmingham—Jefferson
Davenport, L. O.	Birmingham, Rt. 2—Jefferson
Daves, J. G.	Cullman—Cullman
Davidson, A. W.	Bessemer—Jefferson
Davidson, J. S.	Thomasville—Clarke
Davidson, J. W.	Brantley—Crenshaw
Davidson, M. T.	Birmingham—Jefferson
Davie, M. S.	Dothan—Houston
Davie, N. T.	Anniston—Calhoun
Davis, C. A.	Kennedy—Lamar
Davis, C. S.	Mobile—Mobile
Davis, J. L.	Gordo—Pickens
Davis, John Walter, Jr.	Montgomery—Montgomery
Davis, Julian Walker	Birmingham—Jefferson
Davis, L. C.	Gordo—Pickens
Davis, Luther, Jr.	Tuscaloosa—Tuscaloosa
Davis, S. D.	Talladega—Talladega
Dawson, H. P.	Montgomery—Montgomery
Dawson, J. R.	Uniontown—Perry
Day, Edward	Maplesville—Chilton
Day, Jane M.	Montgomery—Montgomery
Day, Robert C.	Montgomery—Montgomery
Dean, Leon	Ensley, Birmingham—Jefferson
Deane, Helen	Auburn—Lee
Deaver, C. W.	Birmingham—Jefferson
Deaver, W. T.	Adamsville, Rt. 2—Jefferson
Dedman, J. E.	Betterton, Md.—**See** Jefferson
DeJanney, N. H.	Montgomery—Montgomery
Denison, G. A.	Birmingham—Jefferson
Denney, J. L.	Alexander City—Tallapoosa
Dennis, J. W.	Auburn—Lee
Dennis, T. E.	Monroeville—Monroe
Denson, F. H.	Bessemer—Jefferson
Denton, Marvin	Oneonta—Blount
Denton, N. C.	Oneonta—Blount
DeRamus, W. H.	Selma—Dallas
Dickey, E. W.	Hazel Green—Madison
Dillon, J. F., 3rd.	Montgomery—Montgomery
Dilworth, T. E., Jr.	Huntsville—Madison
Dinsmore, A. J.	Decatur—Morgan
Dix, A. S.	Mobile—Mobile
Dixon, D. P.	Talladega—Talladega
Dixon, R. E.	Alberta—Wilcox
Dodge, E. F.	Little Rock—See Montgomery
Dodson, J. H.	Mobile—Mobile
Dodson, R. B.	Cullman—Cullman
Doehring, E. T.	Mobile—Mobile
Doherty, D. H.	Selma—Dallas
Donald, C. J.	Birmingham—Jefferson
Donald, D. C.	Birmingham—Jefferson
Donald, J. M.	Birmingham—Jefferson
Donald, P. Y.	Selma—Dallas
Donald, T. C.	Birmingham—Jefferson
Donald, W. J.	Tuscaloosa—Tuscaloosa
Donaldson, B. E.	Carbon Hill—Walker
Donnelly, C. A.	Birmingham—Jefferson
Dorough, J. L.	Prentiss, Miss—**See** Cleburne
Douglas, G. F.	Birmingham—Jefferson
Douglas, G. F., Jr. (S.)	Birmingham—Jefferson
Douglass, John	Birmingham—Jefferson
Dowling, H. B., Jr.	Mobile—Mobile
Dowling, J. D.	Knoxville, Tenn.—**See** Jefferson
Drennen, Earle	Birmingham—Jefferson
DuBois, J. S.	Enterprise—Coffee
Duncan, M. M.	Huntsville—Madison
Duncan, W. W.	Aliceville—Pickens
Dunn, J. E.	Wetumpka—Elmore
Dunn, J. G., Jr.	Opp—Covington
Dunn, M. C.	Florence—Lauderdale
Dunning, G. J.	Linden—Marengo
Dunning, G. J., Jr.	Linden—Marengo
DuPree, J. W.	Opelika, Rt. 2—Lee
Du Puy, A. J.	Athens—Limestone
Durden, J. D.	Anniston—Calhoun
Durick, S. A.	Bessemer—Jefferson
Dyar, J. P.	Moulton—Lawrence
Earl, A. R.	Mobile—Mobile
Eddins, W. W.	Monroeville—Monroe
Edge, O. N.	Troy—Pike
Edwards, D. B.	Tyler, RFD—Dallas
Edwards, E. H., Jr.	Leeds—Jefferson
Edwards, G. T.	Selma, Rt. 1—Dallas
Edwards, J. E. H.	McCalla—Jefferson
Edwards, W. A.	Wetumpka—Elmore
Ehlert, W. E.	Selma—Dallas
Eichold, Samuel	Mobile—Mobile
Eiland, J. D.	Verbena—Chilton
Eiland, R. J.	Clanton—Chilton
Elgin, C. E.	Praco—Jefferson
Elkourie, L. A.	Birmingham—Jefferson
Elliott, H. R., Jr.	Fairfield—Jefferson
Ellis, J. T.	Dothan—Houston
Embry, J. C.	Vincent—Shelby
Emerson, J. F.	Spring Garden—Cherokee
England, F. T.	Mobile—Mobile
England, J. T.	Mobile—Mobile
Eppes, Nell R.	Eufaula—Barbour
Eskew, M. H.	Uniontown—Perry
Evans, K. P.	Sylacauga—Talladega
Evers, Ray	Andalusia—Covington
Eversole, W. C.	Vincent—Shelby
Falletta, P. T.	Birmingham—Jefferson
Farish, C. G.	Moulton—Lawrence
Farmer, H. R.	Fairfield—Jefferson
Farrar, W. C.	Birmingham—Jefferson
Farrior, J. H.	Montgomery—Montgomery
Faucett, DeWitt	Gadsden—Etowah
Faucett, G. L.	Gadsden—Etowah
Faulk, W. M.	Tuscaloosa—Tuscaloosa

Name	Town and County
Ferguson, A. D.	Shawmut—Chambers
Ferguson, Hal	Birmingham—Jefferson
Ferry, J. A.	Birmingham—Jefferson
Feulner, C. D.	Selma—Dallas
Field, C. H.	Birmingham—Jefferson
Finlay, A. G.	Guntersville—Marshall
Finley, W. A.	Cherokee—Colbert
Finney, J. O.	Gadsden—Etowah
Fisher, C. J.	Florence—Lauderdale
Fisher, G. E.	Birmingham—Jefferson
Fitts, Alston	Tuscaloosa—Tuscaloosa
Flowers, J. H.	Newton, RFD—Houston
Flowers, P. R.	Dothan—Houston
Floyd, H. T.	Auburn—Lee
Floyd, M. T.	Ft. Payne—DeKalb
Floyd, S. J.	Phoenix City—Russell
Floyd, T. J.	Abbeville—Henry
Fonde, G. H.	Mobile—Mobile
Fonde, W. G.	Mobile—Mobile
Fonville, W. D.	Birmingham—Jefferson
Ford, C. E.	Roanoke—Randolph
Ford, C. H.	Birmingham—Jefferson
Ford, H. G.	Gadsden—Etowah
Ford, J. C.	Luverne—Crenshaw
Ford, J. W.	Gadsden—Etowah
Ford, W. F.	Gadsden, Rt. 2—Etowah
Forney, J. M.	Tuscaloosa—Tuscaloosa
Foshee, R. A.	Alexander City, Rt. 5—Tallapoosa
Foster, J. O.	Luverne—Crenshaw
Fowler, J. T.	Birmingham—**See** Houston
Fox, B. A.	Birmingham—Jefferson
Fox, C. A.	Birmingham—Jefferson
Frank, H. W.	Gadsden—Etowah
Franklin, C. M.	Union Springs—Bullock
Franklin, H. G.	Thorsby—Chilton
Frantz, W. E.	Gadsden—Etowah
Frazer, B. F.	Lafayette—Chambers
Frazer, E. B.	Mobile—Mobile
Frederick, R. H.	Phil Campbell—Franklin
Friedman, L. L.	Birmingham—Jefferson
Fudge, Walter	Lamison—Wilcox
Gaillard, S. S.	Rt. 1, Frisco City—Monroe
Gaillard, T. H.	Magnolia—Marengo
Gaines, C. D.	Birmingham—Jefferson
Gaines, H. F.	Fairfield—Jefferson
Gaines, M. T.	Toulminville—Mobile
Gaines, W. D.	Atmore—**See** Chambers
Galbraith, J. G.	Birmingham—Jefferson
Gallaway, F. W.	Florala—Covington
Garber, J. R.	Birmingham—Jefferson
Garlington, R. B.	Brilliant—Marion
Garlington, W. H.	Birmingham—Jefferson
Garmon, C. N.	Rt. 2, Bessemer—Jefferson
Garrison, J. E.	Birmingham—Jefferson
Gary, Loren, Jr.	Tuscumbia—Colbert
Gary, R. E.	Tuscumbia—Colbert
Gay, A. J.	Roanoke—Randolph
Gay, C. P.	Geneva—Geneva
Gay, J. S.	Ashland—Clay
Gay, N. S.	Whistler—Mobile
Gay, O. F. (S.)	Greenville—Butler
Gayden, L. R.	Montgomery—Montgomery
Gehrken, H. S.	Birmingham—Jefferson
Gewin, E. E.	Birmingham—Jefferson
Gibson, E. L.	Enterprise—Coffee
Gill, D. G. (S.)	Montgomery—Montgomery
Gillespie, J. P., Jr.	Gadsden—Etowah
Gillespy, R. R. (S.)	Birmingham—Jefferson
Gipson, A. C.	Gadsden—Etowah
Givhan, E. G., Jr.	Birmingham—Jefferson
Gladney, J. C.	Jasper—Walker
Glasgow, R. D.	Fairfield—Jefferson
Glasgow, R. S.	Adamsville—Jefferson
Glasgow, T. J.	Russellville—Franklin
Glazer, Harry	Montgomery—Montgomery
Glenn, E. B.	Birmingham—Jefferson
Godard, C. G.	Fairhope—Baldwin
Godbold, J. C.	Whatley—Clarke
Godbold, P. E.	Pine Hill—Wilcox
Godsey, Wash	Haleyville—Winston
Goff, W. H.	Rockford—Coosa
Golden, W. C.	Clanton—Chilton
Goldner, Harry	Birmingham—Jefferson
Goldsmith, E. F.	Atmore—**See** Mobile
Goldstein, Ben	Birmingham—Jefferson
Goodall, A. G.	Birmingham—Jefferson
Goodall, R. G.	Fairfield—Jefferson
Goode, J. H.	Tuscaloosa—Tuscaloosa
Gordon, G. R. (S.)	Birmingham—Jefferson
Gordon, S. A.	Marion—Perry
Gould, K. N.	Wilsonville—Shelby
Gragg, V. J.	Magnolia Springs—Baldwin
Graham, A. H.	Opelika—Lee
Graham, G. S., Jr.	Birmingham—Jefferson
Graham, J. B.	Mobile—Mobile
Granger, F. G.	Ashford—Houston
Granger, W. H.	Pell City—St. Clair
Grant, C. A.	Goshen—Pike
Grasberger, J. C. (S.)	Bessemer—Jefferson
Graves, A. W.	Gadsden—Etowah
Graves, Stuart	University—Tuscaloosa
Gray, E. W.	Florence—Lauderdale
Gray, H. E.	Anniston—Calhoun
Gray, H. W.	Crichton—Mobile
Grayson, A. T.	New Market—Madison
Grayson, R. J.	Selma—Dallas
Green, A. H.	Birmingham—Jefferson
Green, Elbert Paul	Birmingham—Jefferson
Green, Elbert Pierce	Jacksonville—Calhoun
Green, R. C.	Birmingham—Jefferson
Greene, G. B.	Birmingham—Jefferson
Greene, J. H.	Whistler—Mobile
Greer, H. D.	Decatur—Morgan
Gresham, G. L.	Speigner—Elmore
Gresham, W. A.	Russellville—Franklin
Griffin, G. W.	Birmingham—Jefferson
Griffin, I. H.	Moundville—Hale
Griffith, H. A.	Sheffield—Colbert
Grimes, O. R.	Gadsden—Etowah
Grosfeld, W. J.	Decatur—Morgan
Gross, C. M.	Cullman, Rt. 3—Cullman
Gross, R. M.	Cullman—Cullman
Grote, C. A.	Huntsville—Madison
Guest, R. J., Jr.	Ft. Payne—DeKalb
Guice, C. L.	Gadsden—Etowah
Guin, J. C., Sr.	Moore's Bridge—Tuscaloosa
Guin, J. C., Jr.	Tuscaloosa—Tuscaloosa
Gully, V. S.	Butler—Choctaw
Gunter, W. A., 3rd	Montgomery—Montgomery
Guthrie, R. F.	Birmingham—Jefferson
Guyton, T. M.	Decatur—Morgan
Gwin, P. E.	Sumiton—Walker
Haas, T. D.	Mobile—Mobile
Habeeb, Alfred	Fairfield—Jefferson
Hagood, D. S.	Montgomery—Montgomery
Hagood, J. W.	Evergreen—Conecuh
Haigler, J. R.	Montgomery—Montgomery
Hail, R. A.	Robertsdale—Baldwin
Hairston, W. G.	Birmingham—Jefferson
Haisten, D. C.	Dothan—Houston
Hale, R. E.	Bellamy—Sumter
Hall, G. W.	Northport—Tuscaloosa
Hall, S. P., Jr.	Scottsboro—Jackson
Hamil, J. Y.	Decatur—Morgan
Hamilton, G. C.	Piedmont—Calhoun
Hamilton, S. G.	Tuscaloosa—Tuscaloosa
Hamm, Pat	Huntsville—Madison
Hamner, H. T.	Camp Hill—Tallapoosa
Hamner, L. H.	Dadeville—Tallapoosa
Hamner, S. C.	Andalusia—Covington

Name	Town and County
Hamrick, R. A.	Fairfield—Jefferson
Hamrick, R. H.	Birmingham—Jefferson
Hanby, E. K.	Attalla—Etowah
Hand, L. M.	Demopolis—Marengo
Hankins, G. M.	Fairfield—Jefferson
Hannon, W. C.	Mobile—Mobile
Hansard, W. S.	Henagar, RFD—DeKalb
Hardin, S. T.	Tuscaloosa—Tuscaloosa
Hardy, W. B.	Birmingham—Jefferson
Hargis, A. S., Jr.	Ensley, Birmingham—Jefferson
Hargis, E. H.	Birmingham—Jefferson
Harper, R. E.	Tuscumbia—Colbert
Harper, W. F.	Selma—Dallas
Harris, A. B.	Birmingham—Jefferson
Harris, Edward A.	Fairfield—Jefferson
Harris, Esau A.	Bessemer—Jefferson
Harris, F. W.	Birmingham—Jefferson
Harris, H. A.	Birmingham—Jefferson
Harris, H. P.	Bessemer—Jefferson
Harris, R. R.	Pratt City, Birmingham—Jefferson
Harris, Seale	Birmingham—Jefferson
Harrison, K. W.	Enterprise—Coffee
Harrison, W. G.	Birmingham—Jefferson
Hartung, C. F.	Bridgeport—Jackson
Harwood, R. E.	Gainesville—Sumter
Hatchett, W. C.	Ft. Lauderdale, Fla.—See Madison
Haun, C. A.	Ensley, Birmingham—Jefferson
Hayes, C. P.	Elba—Coffee
Hayes, J. P.	Clanton—Chilton
Haygood, J. K.	Union Springs—Bullock
Haynes, W. G.	Birmingham—Jefferson
Hays, J. H.	Birmingham—Jefferson
Hays, Luther	Cullman—Cullman
Heacock, J. D.	Birmingham—Jefferson
Heflin, Wyatt	Birmingham—Jefferson
Heiter, W. L.	Mobile—Mobile
Henderson, A. D.	Mobile—Mobile
Henderson, E. A.	Opelika—Lee
Henderson, H. H.	Greenville—Butler
Henderson, H. H., Jr.	Birmingham—Jefferson
Henderson, T. B., Jr.	Mobile—Mobile
Hendrix, R. Walker	Evergreen—Conecuh
Hermann, R. C.	Selma—Dallas
Herrin, C. E.	Cullman—Cullman
Hester, F. L.	Coatopa, RFD—Sumter
Hicks, D. M.	Cottonwood—Houston
Hicks, J. B.	Montgomery—Montgomery
Hightower, R. G. (S.)	Pratt City—Jefferson
Hill, H. W.	Carrollton—Pickens
Hill, J. F.	Montgomery—Montgomery
Hill, J. H.	Talladega—Talladega
Hill, L. L., Jr.	Montgomery—Montgomery
Hill, R. C.	York—Sumter
Hill, Robert Lee	Haleyville—Winston
Hill, Robert Leroy	Winfield—Marion
Hill, R. S.	Montgomery—Montgomery
Hill, V. H. (S.)	Mobile—Mobile
Hill, V. H.	Mobile—Mobile
Hill, W. E. (S.)	Carrollton—Pickens
Hillhouse, J. L.	Birmingham—Jefferson
Hilson, Lewis	Dothan—Houston
Hilt, J. L.	Lineville—Clay
Hines, J. A.	Siluria—Shelby
Hinton, L. H.	Mobile—Mobile
Hirsh, J. E.	Birmingham—Jefferson
Hodge, E. K.	Davison—Tallapoosa
Hodges, E. Julian	Scottsboro—Jackson
Hodges, Rayford	Scottsboro—Jackson
Hodgson, P. M.	Stockton—Baldwin
Hogan, E. P.	Birmingham—Jefferson
Hogan, G. A.	Birmingham—Jefferson
Hogan, M. D.	Boonton, N. J.—See Jefferson
Hogan, R. E.	Ensley, Birmingham—Jefferson
Holding, B. F.	Montgomery—Montgomery
Holladay, J. J., Jr.	Gadsden—Etowah
Holler, C. A. F.	Gadsden—Etowah
Holley, A. F.	Brewton—Escambia
Holley, J. F.	Lockhart—Covington
Holliman, J. D.	Huntsville—Madison
Hollis, L. W.	Mobile—Mobile
Hollis, M. C.	Winfield—Marion
Holloway, H. S.	Notasulga—Macon
Holman, N. W.	Ozark—Dale
Holmes, W. C.	Foley—Baldwin
Hope, J. C.	Mobile—Mobile
Horn, J. R.	Bessemer—Jefferson
Horn, S. W.	Bessemer—Jefferson
Horsley, H. L.	Boaz—Marshall
Hough, J. S.	Montgomery—Montgomery
Howard, P. J.	Mobile—Mobile
Howe, C. D.	Birmingham—Jefferson
Howell, J. P.	Selma—Dallas
Howell, J. V.	Marion—Perry
Howell, W. E.	Haleyville—Winston
Howle, J. A.	Hartselle—Morgan
Hubbard, L. H.	Montevallo—Shelby
Hubbard, L. W.	Tarrant—Jefferson
Hubbard, T. B.	Montgomery—Montgomery
Huckaby, W. R.	Guntersville—Marshall
Huddleston, R. L.	Deatsville—Elmore
Hudson, P. D. (S.)	Opelika—Lee
Huey, T. F.	Anniston—Calhoun
Huey, T. F., Jr.	Anniston—Calhoun
Hufstedler, J. G.	Memphis—See Colbert
Hughes, B. A.	Birmingham—Jefferson
Hughes, J. W.	Decatur—Morgan
Hughes, M. P.	Gadsden—Etowah
Hughes, V. P.	Cullman—Cullman
Hunt, H. C.	Livingston—Sumter
Hunt, M. C.	Fairfax—Chambers
Hunt, Marston	Boaz—Marshall
Hurst, J. C.	Opp—Covington
Hutto, A. S.	Pinson—Jefferson
Hyatt, E. M.	Albertville—Marshall
Inge, F. M.	Mobile—Mobile
Inge, J. T.	Mobile—Mobile
Ingram, G. H. (S.)	Tuscaloosa—See Mobile
Irons, R. A.	Thomasville—Clark
Irwin, R. P.	Moulton—Lawrence
Irwin, W. H.	Birmingham—Jefferson
Irwin, W. W.	Moulton—Lawrence
Isbell, A. L.	Albertville—Marshall
Isbell, E. A.	Gadsden—Etowah
Issos, D. N.	Birmingham—Jefferson
Jackson, A. A.	Florence—Lauderdale
Jackson, A. C.	Jasper—Walker
Jackson, B. F.	Montgomery—Montgomery
Jackson, B. F., Jr.	Montgomery—Montgomery
Jackson, C. A.	York—Sumter
Jackson, D. E.	Lester—Limestone
Jackson, H. L.	Birmingham—Jefferson
Jackson, J. A.	Sulligent—Lamar
Jackson, L. F.	Panola—Sumter
Jackson, N. E.	Florence—Lauderdale
James, N. G.	Hayneville—Lowndes
James, S. H.	Outwood, Ky.—See Jackson
Jenkins, J. F.	Birmingham—Jefferson
Jenkins, J. F., Jr.	Birmingham—Jefferson
Johns, L. J.	Birmingham—Jefferson
Johnson, C. E.	Tuscaloosa—Tuscaloosa
Johnson, Claud	Montgomery—Montgomery
Johnson, G. E.	Auburn—Lee
Johnson, G. T.	Mobile—Mobile
Johnson, H. N.	New York—See Montgomery
Johnston, F. T.	Brundidge—Pike
Johnston, Hardee	Birmingham—Jefferson
Johnston, I. L.	Samson—Geneva
Johnston, J. C.	Chapman—Butler
Johnston, J. D.	Brundidge—Pike
Jones, C. T.	Newville—Henry

Name	Town and County
Jones, G. W.	Parrish—Walker
Jones, I. N.	Greensboro—Hale
Jones, J. A., Jr.	Montgomery-Montgomery
Jones, J. P.	Camden—Wilcox
Jones, T. J.	Marion—Perry
Jones, U. L.	Brooklyn—Conecuh
Jones, Walter C.	Birmingham—Jefferson
Jones, Wm. C.	Mobile—Mobile
Jones, W. N.	Birmingham—Jefferson
Jordan, H. C.	Robertsdale—Baldwin
Jordan, H. W.	Robertsdale—Baldwin
Jordan, James	McKenzie—Butler
Jordan, J. S.	Birmingham—Jefferson
Jordan, Jos. Wiley	Ashland—Clay
Jordan, O. L.	Tuscaloosa—Tuscaloosa
Jordan, W. F.	Huntsville—Madison
Jordan, W. M.	Birmingham—Jefferson
Joseph, K. N.	Birmingham—Jefferson
Justice, J. D.	Birmingham—Jefferson
Kahn, S. A.	Birmingham—Jefferson
Kaiser, E. N.	Montgomery—Montgomery
Kay, F. A.	Birmingham—Jefferson
Kelley, R. H.	Pompton Lake, N. J.—**See** Jefferson
Kelly, E. L.	Evergreen—Conecuh
Kenan, James	Selma—Dallas
Kendrick, J. E.	Greenville—Butler
Kennedy, B. H., Jr.	Birmingham—Jefferson
Kennedy, F. F.	Birmingham—Jefferson
Kennedy, J. J.	Tuscaloosa—Tuscaloosa
Kennedy, W. C., Jr.	Florence—Lauderdale
Kesmodel, K. F.	Birmingham—Jefferson
Keyton, J. A.	Dothan—Houston
Killian, C. D.	Ft. Payne—DeKalb
Killingsworth, N. W.	Brundidge—Pike
Kilpatrick, G. C.	Mobile—Mobile
Kimbrough, C. E.	Linden—Marengo
Kimbrough, R. M.	Powderly—Jefferson
Kimbrough, W. E.	Chatom—Washington
Kimmey, J. M.	Elba—See Calhoun
Kincannon, L. T.	Birmingham—Jefferson
Kinkead, K. J.	Birmingham—Jefferson
Kirby, L. E.	Birmingham—Jefferson
Kirk, A. A.	Tuscaloosa—Tuscaloosa
Kirk, A. T.	Gordo, Rt. 2—Pickens
Kirkpatrick, M. B.	Montgomery—Montgomery
Kirkpatrick, S. M.	Selma—Dallas
Klein, W. W.	Altoona, Rt. 2—Blount
Klie, H. B.	Forkland—Greene
Knight, J. H.	Birmingham—Jefferson
Kocour, E. J.	Montgomery—Montgomery
Kracke, R. R.	Birmingham—Jefferson
Krout, C. F.	Brent—Bibb
Kyser, J. A.	Madison—Madison
Kyzar, J. H.	Andalusia—Covington
Lafferty, C. R.	Montgomery—Montgomery
Lamar, C. L.	Birmingham—Jefferson
Lamberth, W. C.	Alexander City—Tallapoosa
Langdon, H. R.	Birmingham, Rt. 8—Jefferson
Lary, J. H.	Huntsville—Madison
Laslie, C. G.	Montgomery—Montgomery
Laslie, J. Cobb	Montgomery—Montgomery
Latiolais, S. G.	Dothan—Houston
Laughlin, J. B.	Huntsville—Madison
Lavender, B. N.	Albertville—Marshall
Lavender, C. B.	Fairfield—Jefferson
Lawrence, C. O.	Clanton—Chilton
Lawrence, Toombs	Tuscaloosa—Tuscaloosa
Lawson, C. L.	Gadsden—Etowah
Lawson, Nettie B.	Gadsden—Etowah
Leach, C. N.	New York—**See** Montgomery
Leach, J. E.	Gadsden—Etowah
Leach, Sydney	Tuscaloosa—Tuscaloosa
Leatherwood, E. F.	Hayneville—Lowndes
Lee, A. B.	Lanett—Chambers
Lee, F. J.	Luverne—Crenshaw
Lee, L. T.	Selma—Dallas
Leland, Joseph	Birmingham—Jefferson
Lester, B. S.	Birmingham—Jefferson
Lester, R. P.	Mobile—Mobile
Lett, E. R.	Tallassee—Elmore
Levi, I. P.	Anniston—Calhoun
Lewis, C. F.	Birmingham—Jefferson
Lewis, H. J.	Birmingham—Jefferson
Lewis, T. K.	Birmingham—Jefferson
Leyden, H. A.	Anniston—Calhoun
Liebeskind, M. M.	Mobile—Mobile
Lightfoot, P. M.	Shorter—Macon
Linder, B. G.	Birmingham—Jefferson
Linder, Hugh M. C.	Birmingham—Jefferson
Lineberry, E. D.	Birmingham—Jefferson
Linn, J. E.	Birmingham—Jefferson
Lisenby, J. O.	Atmore—Escambia
Lister, R. H.	Ozark—Dale
Little, E. G.	Gadsden—Etowah
Little, J. H.	Mobile—Mobile
Little, S. G.	Birmingham—Jefferson
Littlejohn, W. S.	Birmingham—Jefferson
Littlepage, G. F.	Sheffield—Colbert
Littlepage, T. M.	Butler—Choctaw
Livingston, J. A.	Birmingham—Jefferson
Lloyd, W. K.	Anniston—Calhoun
Locke, W. W.	Birmingham—Jefferson
Long, D. J.	Montgomery—Montgomery
Long, J. R.	Marion—Perry
Long, R. N.	Selma—Dallas
Long, W. W.	Birmingham—Jefferson
Lonnergan, L. R. (S.)	Washington, D. C.—**See** Etowah
Love, J. T.	Birmingham—Jefferson
Lovelady, R. G.	Birmingham—Jefferson
Lovelady, W. H.	Hartselle—Morgan
Lovell, D. L.	Birmingham—Jefferson
Lovett, W. J.	Sipsey—Walker
Lovvorn, R. C.	Newell—Randolph
Lucas, R. L.	Anniston—Calhoun
Lucius, R. S.	Eutaw—Greene
Luckie, K. E.	Selma—Dallas
Lull, Cabot	Birmingham—Jefferson
Lupton, F. A.	Birmingham—Jefferson
Lyles, Robin	Leighton—Colbert
Lynch, M. H.	Scottsboro—Jackson
MacIntyre, D. S.	Birmingham—Jefferson
MacLennan, E. R.	Opp—Covington
MacQueen, J. W.	Birmingham—Jefferson
Maddox, John W.	Ardmore—Limestone
Magruder, T. V.	Birmingham—Jefferson
Majors, W. B. (S.)	Tuscaloosa—Tuscaloosa
Majure, E. O.	Tallassee—Elmore
Malouf, G. M.	Ashville—St. Clair
Manasco, Hobson	Haleyville—Winston
Manley, J. R.	Roanoke—Randolph
Maples, J. H.	Athens—Limestone
Maples, J. M.	Killen, RFD—Lauderdale
Maples, W. E.	Athens—Limestone
Markheim, H. R.	Iowa City—**See** Cullman
Marlette, G. C.	New Orleans—**See** Escambia
Marrs, T. C.	Montgomery—Montgomery
Marsh, J. S.	Collinsville—DeKalb
Marshall, W. L.	Langdale—Chambers
Martin, C. T.	Headland—Henry
Martin, F. J.	Montgomery—Montgomery
Martin, H. F.	Mobile—Mobile
Martin, J. A.	Montgomery—Montgomery
Martin, J. C.	Cullman—Cullman
Martin, R. A.	Pell City—St. Clair
Martin, T. E.	Guntersville—Marshall
Martin, T. M.	Plantersville—Dallas
Martin, W. A.	Birmingham—Jefferson
Martin, W. B.	Warrior—Jefferson
Martz, Harry	Birmingham—Jefferson

Name	Town and County
Mason, D. A.	Selma—Dallas
Mason, J. M.	Birmingham—Jefferson
Mason, J. M. III	Birmingham—Jefferson
Massey, B. J.	Enterprise—Coffee
Mastin, O. C.	Wedowee—Randolph
Matthews, A. D.	Ozark—Dale
Maury, F. H.	Mobile—Mobile
Maxwell, J. A.	Tuscaloosa—Tuscaloosa
Maxwell, W. J.	Sheffield—Colbert
May, W. L.	Powhatan—Jefferson
Mayer, K. A.	Lower Peach Tree—Wilcox
Mayfield, P. B.	Tuscaloosa—Tuscaloosa
Mayhall, C. V.	Athens—Limestone
Mazyck, Arthur	Dothan—Houston
McAdory, E. D.	Cullman—Cullman
McBurney, Ralph	Birmingham—Jefferson
McCain, W. J.	Livingston—Sumter
McCall, D. T.	Mobile—Mobile
McCann, R. B.	Seale—Russell
McCarn, O. C., Jr.	Birmingham—Jefferson
McCaslan, W. H.	Union Springs—Bullock
McClure, H. A.	Mayo, Fla.—**See** Lamar
McClure, Herbert Cecil	Mobile—Mobile
McConnico, F. H.	Montgomery—Montgomery
McCord, Bert	Gadsden—Etowah
McCorkle, F. W.	Gadsden—Etowah
McCown, W. G.	Huntsville—Madison
McCrary, G. C.	Jackson—Clarke
McCraw, R. T.	Oxford—Calhoun
McCullough, G. C. (S.)	Jacksonville, N. C.—**See** Jefferson
McDaniel, Joe Crosby	Birmingham—Jefferson
McDaniel, Jos. Columbus	York—Sumter
McDiarmid, T. S.	Gadsden—Etowah
McDonald, C. W.	Union Springs—Bullock
McDonald, Juanita B.	Andalusia—Covington
McDowell, J. F.	Birmingham—Jefferson
McElroy, J. M.	Attalla—Etowah
McEniry, E. P.	Dolomite—Jefferson
McFatter, T. K.	Dothan—Houston
McGahey, R. G.	Birmingham—Jefferson
McGahey, T. P.	Birmingham—Jefferson
McGehee, H. T.	Birmingham—Jefferson
McGhee, Moses	Daleville—Dale
McGrath, W. E.	Sheffield—Colbert
McGraw, F. J.	Birmingham—Jefferson
McInnis, W. R.	Clio—Barbour
McIntosh, E. L.	Camden—Wilcox
McKinnon, H. A.	Birmingham—Jefferson
McKissack, W. M.	Huntsville—Madison
McLain, A. D.	Salem—Lee
McLaughlin, J. D.	Blue Springs—Barbour
McLean, C. C.	Birmingham—Jefferson
McLeod, C. D.	Andalusia—Covington
McLeod, J. C.	Bay Minette—Baldwin
McLester, J. B.	Birmingham—Jefferson
McLester, J. S.	Birmingham—Jefferson
McNease, B. W.	Fayette—Fayette
McQueen, J. P.	Birmingham—Jefferson
McQuiddy, R. C.	Birmingham—Jefferson
McVay, L. V.	Mobile—Mobile
Meadows, Burton	Birmingham—Jefferson
Meadows, H. H., Jr. (S.)	Montgomery—Montgomery
Meadows, J. A.	Birmingham—Jefferson
Meeker, W. R.	Mobile—Mobile
Mehaffey, J. W.	Birmingham—Jefferson
Meharg, S. T.	Anniston—Calhoun
Meharg, W. G.	Anniston—Calhoun
Meigs, J. H.	Anniston—Calhoun
Meigs, S. C.	Centerville—Bibb
Melton, T. A.	Atmore—Escambia
Meneray, W. E.	Gadsden—Etowah
Mertins, P. S., Jr.	Montgomery—Montgomery
Meyer, B. S.	Birmingham—Jefferson
Meyer, Jerome	Birmingham—Jefferson
Miles, N. E. (S.)	Birmingham—Jefferson
Miles, W. C.	Oneonta—Blount
Miller, D. A. (S.)	Birmingham—Jefferson
Miller, J. A.	Wylam—Jefferson
Miller, S. T.	Yantley—Choctaw
Miller, W. L.	Gadsden—Etowah
Milligan, R. L.	Montgomery—Montgomery
Minnich, W. C.	Mobile—Mobile
Minor, W. H.	Mobile—Mobile
Minot, Dobbs	Tuscaloosa—Tuscaloosa
Minus, J. A.	Epes—Sumter
Mitchell, G. J.	Mobile—Mobile
Mitchell, H. E.	Birmingham—Jefferson
Mitchell, J. I.	Haleville—Winston
Mitchell, S. A.	Rt. 7, Birmingham—Jefferson
Mohr, C. A.	Mobile—Mobile
Monsky, D. B.	Montgomery—Montgomery
Montgomery, J. Ethel	Belle Ellen—Bibb
Moody, E. F.	Dothan—Houston
Moody, Maxwell	Tuscaloosa—Tuscaloosa
Moody, W. E.	Birmingham—Jefferson
Moore, C. R.	Clanton—Chilton
Moore, C. W. C.	Talladega—Talladega
Moore, D. S., Jr.	Birmingham—Jefferson
Moore, E. G.	Tallassee—Elmore
Moore, E. M.	Prattville—Autauga
Moore, J. G.	Birmingham—Jefferson
Moore, J. H.	Lafayette—Chambers
Moore, J. W.	Clanton—Chilton
Moore, L. H.	Orrville—Dallas
Moore, W. R.	Florence—Lauderdale
Moore, W. W.	Camden—Wilcox
Moorer, M. L.	Mt. Vernon—Mobile
Moorman, J. D.	Huntsville—Madison
Moorman, M. R.	Huntsville—Madison
Morgan, J. O.	Gadsden—Etowah
Morgan, J. R.	Birmingham—Jefferson
Morland, H. C.	Birmingham—Jefferson
Morris, H. B.	Birmingham—Jefferson
Morris, H. R.	Birmingham—Jefferson
Morrow, R. P.	West Point (Ga.)—**See** Chambers
Morton, Benjamin	Birmingham—Jefferson
Morton, L. E.	Anniston—Calhoun
Moseley, S. O.	Selma—Dallas
Motley, J. P.	Ensley, Birmingham—Jefferson
Motley, S. D.	Ensley, Birmingham—Jefferson
Mount, Bernard	Montgomery—Montgomery
Mulherin, H. G.	Mobile—Mobile
Murphree, C. L.	Birmingham—**See** Etowah
Murphree, L. R.	Decatur—Morgan
Murphy, C. M.	Aliceville—Pickens
Murphy, G. E.	Birmingham—Jefferson
Murphy, Iva G. (S.)	Brewton—Escambia
Murphy, S. S., Jr.	Mobile—Mobile
Muscat, J. O.	Mobile—Mobile
Muscat, V. P.	Mobile-Mobile
Nabers, S. F.	Birmingham—Jefferson
Neal, R. D.	Grove Hill—Clarke
Neely, M. G.	Fairfield—Jefferson
Nelson, W. B.	Bay Minette—Baldwin
Nethery, S. J.	Belle Mina—Limestone
Neville, C. W.	Birmingham—Jefferson
Newburn, G. W.	Prichard—Mobile
Newburn, G. W., Jr.	Prichard—Mobile
Newdorp, John (S.)	Montgomery—Montgomery
Newfield, S. U.	Birmingham—Jefferson
Newman, Lucian	Dadeville—Tallapoosa
Newton, G. E.	Prattville—Autauga
Newton, G. G.	Evergreen—Conecuh
Nice, C. M.	Birmingham—Jefferson
Nichols, Cobb	Rockville—Clarke
Nicholson, Cooper	Centerville—Bibb
Nicholson, L. B.	Gadsden—Etowah
Nickerson, Paul	Sylacauga—Talladega
Nickson, H. C.	Montgomery-Montgomery
Noble, William	Ft. Payne—DeKalb
Nodine, E. R.	Montgomery—Montgomery

Name	Town and County
Noland, Lloyd	Fairfield—Jefferson
Noojin, R. O.	Birmingham—Jefferson
Norman, E. T.	Greensboro—Hale
North, W. E.	Mobile—Mobile
Norton, E. M.	Birmingham—Jefferson
Norton, R. O.	Louisville—Barbour
Nungester, G. H.	Decatur—Morgan
Nye, G. E.	Scottsboro—Jackson
O'Connell, Edward	Birmingham—Jefferson
Odom, H. G.	Irondale—Jefferson
O'Gwynn, J. C., Jr.	Mobile-Mobile
Oliver, E. R.	Fairfield—Jefferson
Oliver, J. T.	Tuscaloosa—Tuscaloosa
Olivet, C. A.	Haleyville—Winston
Orr, W. L.	Ozark—Dale
Orton, A. E.	Bessemer—Jefferson
Oswalt, G. G.	Mobile—Mobile
Owen, H. R.	Gadsden-Etowah
Owens, A. H.	Ashland—Clay
Owings, T. L.	Sylacauga—Talladega
Owings, W. J. B.	Brent—Bibb
Owsley, L. H.	Opelika-Lee
Owsley, W. M.	Eclectic—Elmore
Owsley, W. S.	Opelika—Lee
Palmer, Julian G.	Opelika—Lee
Parham, J. B.	Ashville—St. Clair
Park, M. O.	Prichard—See Shelby
Parker, C. E. R.	Montgomery—Montgomery
Parker, D. F.	Pawnee, Okla.—See Bullock
Parker, H. J.	Madison-Madison
Parker, L. D.	Andalusia—Covington
Parker, L. L.	Andalusia—Covington
Parker, P. H.	Margaret—St. Clair
Parker, S. R.	Aliceville—Pickens
Parnell, C. N.	Maplesville—Chilton
Parnell, L. C.	Montevallo—Shelby
Parris, Briggs	Geraldine—DeKalb
Parrish, W. A.	Midland City—Dale
Parsons, J. L.	Ensley—Jefferson
Parsons, W. C.	Birmingham—Jefferson
Parsons, W. S.	Mobile—Mobile
Partlow, R. C.	Tuscaloosa—Tuscaloosa
Partlow, W. D.	Tuscaloosa—Tuscaloosa
Partridge, C. V.	Mobile—Mobile
Patton, T. H., Jr.	Tuscaloosa—Tuscaloosa
Patton, W. B.	Birmingham—Jefferson
Paull, B. P.	Birmingham—Jefferson
Payne, B. C.	Lewisburg—Jefferson
Payne, E. C.	New Castle—Jefferson
Payne, T. J., Jr.	Jasper—Walker
Payne, W. N.	Bessemer—Jefferson
Peacock, L. E.	West Blocton—Bibb
Peake, J. D.	Mobile—Mobile
Peck, Willena	Montevallo—Shelby
Pennington, J. A.	Rt. 2, Birmingham—Jefferson
Penton, J. R.	Montgomery—Montgomery
Perdue, J. D.	Mobile—Mobile
Perley, A. I.	Boston—See Chambers
Perry, A. R. (S.)	Mobile—Mobile
Perry, E. B.	Birmingham—Jefferson
Peters, G. S.	Montgomery—Montgomery
Peterson, E. J.	Birmingham—Jefferson
Peterson, J. J.	Mobile—Mobile
Pettus, J. J.	Belle Mina—Limestone
Pfeiffer, R. B.	Birmingham—Jefferson
Phillips, G. W.	Birmingham—Jefferson
Pierce, W. M.	Tuscumbia—Colbert
Pierson, T. C.	Alden—Jefferson
Pilkington, J. S.	Selma—Dallas
Piper, B. L.	Georgiana—Butler
Pitchford, J. D.	Sylacauga—Talladega
Pitt, C. K.	Dallas, Texas—See Morgan
Pitts, E. B.	Fairfield—Jefferson
Planck, E. H., Jr.	Anniston—Calhoun
Pohl, W. F.	Sycamore—Talladega
Poole, W. L.	Birmingham—Jefferson
Pope, E. C.	Birmingham—Jefferson
Posey, B. F.	Birmingham—Jefferson
Posey, J. F.	Anniston—Calhoun
Posey, L. C.	Birmingham—Jefferson
Pow, J. R.	Woodward—Jefferson
Powell, H. B.	Gadsden—Etowah
Powers, A. D.	Athens—Limestone
Prather, R. C.	Phoenix City—Russell
Prescott, J. L.	Birmingham—Jefferson
Prescott, W. E.	Birmingham—Jefferson
Prescott, W. E., Jr.	Birmingham—Jefferson
Price, E. S.	Tuscaloosa—Tuscaloosa
Price, L. C.	Florence—Lauderdale
Pruitt, E. P.	Birmingham—Jefferson
Pryor, R. B.	Mulga—Jefferson
Pugh, J. T.	Grove Hill—Clarke
Pye, Alice Hill	Montgomery—Montgomery
Ralls, A. W.	Gadsden—Etowah
Ramcy, D. R., Jr.	Greensboro—Hale
Ransom, W. W.	Birmingham—Jefferson
Rawls, V. Q.	Brewton—Escambia
Ray, E. A.	Andalusia—Covington
Ray, E. C.	Ensley, Birmingham—Jefferson
Rayfield, J. D.	Jacksonville—Calhoun
Rea, J. W.	Florence—Lauderdale
Reagan, Cas	Birmingham—Jefferson
Reaves, J. U.	Mobile—Mobile
Redden, R. H.	Sulligent—Lamar
Reid, James	Clayton—Barbour
Reid, J. I.	Montevallo—Shelby
Reim, N. H.	Tuscaloosa—Tuscaloosa
Rennie, T. L.	Pell City—St. Clair
Reynolds, F. D.	Montgomery—Montgomery
Reynolds, G. C.	Brundidge—Pike
Rhodes, C. E.	Jefferson—Marengo
Richey, C. H.	Valley Head—DeKalb
Riggs, F. W.	Montgomery—Montgomery
Rike, H. C.	Birmingham—Jefferson
Riley, H. C.	Coffee Springs—Geneva
Riser, W. H.	Lafayette—Chambers
Riser, W. H., Jr.	Birmingham—Jefferson
Roach, A. N. T.	Mobile—Mobile
Roan, A. M.	Decatur—Morgan
Robbins, W. J.	Florence—Lauderdale
Roberson, J. T.	Riverside—St. Clair
Roberts, J. M.	Vernon—Lamar
Roberts, M. J.	Mobile—Mobile
Roberts, S. S.	Florence—Lauderdale
Roberts, W. S.	Birmingham—Jefferson
Robertson, B. O.	Birmingham—Jefferson
Robertson, J. B.	Fayette—Fayette
Robertson, J. P.	Birmingham—Jefferson
Robinson, A. N.	Coffeeville—Clarke
Robinson, C. B.	Marion—Perry
Robinson, E. B.	Fairfield—Jefferson
Robinson, H. W.	Edna—Choctaw
Rodriguez, J. M.	Louisville—Barbour
Roe, L. W.	Mobile—Mobile
Rogers, H. L.	Albertville—Marshall
Rogers, J. H.	Gadsden—Etowah
Roscoe, G. J.	Birmingham—Jefferson
Rosen, H. L.	Montgomery—Montgomery
Ross, C. H.	Mobile—Mobile
Rosser, W. J.	Birmingham—Jefferson
Rountree, W. B.	Thomas Sta., Birmingham—Jefferson
Rouse, C. C.	Mobile—Mobile
Rowan, W. W.	Attalla—Etowah
Rowe, G. T.	Hanceville—Cullman
Rowe, H. S.	Mt. Vernon—Mobile
Rowe, J. F.	Mobile—Mobile
Rowe, M. C.	Martinsville, Va.—See Houston
Rowe, M. S.	Gadsden—Etowah
Rucker, E. W., Jr.	Birmingham—Jefferson

Name	Town and County
Rudder, J. W.	Toxey—Choctaw
Rudulph, C. M.	Birmingham—Jefferson
Rumpanos, S. N.	Mobile—Mobile
Russell, C. H.	Huntsville—Madison
Russell, R. O.	Birmingham—Jefferson
Rutherford, C. L.	Mobile—Mobile
Ryan, J. M.	Helena—Shelby
Sacks, H. M.	Troy—Pike
Salley, G. W.	Atmore—Escambia
Salter, C. L.	Talladega—Talladega
Salter, P. P.	Eufaula—Barbour
Salter, W. M.	Anniston—Calhoun
Samford, M. W.	Opelika—Lee
Samuel, I. J.	Altoona—Etowah
Sanders, E. H.	Columbiana—Shelby
Sanders, J. G.	Mobile—Mobile
Sanders, S. R.	Moulton—Lawrence
Sanders, W. B.	Troy—Pike
Sandlin, E. G.	Holly Pond—Cullman
Sankey, H. J.	Nauvoo—Walker
Saunders, J. H.	Mobile—Moblie
Savage, C. H.	Prichard—Mobile
Savage, H. J.	Gadsden—Etowah
Savage, Victor	Kennedy—Lamar
Sawyer, H. P.	Montgomery—Montgomery
Scales, J. P.	Livingston—Sumter
Scales, W. W.	Mobile—Mobile
Scarbrough, B. C.	Albertville—Marshall
Schapiro, M. M. (S.)	Ensley—Jefferson
Schmitz-Dumont, Isabella M.	Selma—Dallas
Schoolar, T. E.	Centerville—Bibb
Scofield, T. F.	Birmingham—Jefferson
Scott, E. M.	Birmingham—Jefferson
Scott, Marvin	Headland—Henry
Scott, W. F.	Birmingham—Jefferson
Scrivner, J. D.	Berry—Fayette
Searcy, H. B.	Tuscaloosa—Tuscaloosa
Seay, J. E.	Birmingham—Jefferson
Segrest, G. O.	Mobile—Mobile
Seibold, J. L.	Birmingham—Jefferson
Self, G. W.	Trafford—Blount
Selikoff, S. J.	Montgomery—Montgomery
Sellers, D. F.	Mobile—Mobile
Sellers, H. G.	Birmingham—Jefferson
Sellers, I. J.	Birmingham—Jefferson
Sellers, N. E.	Anniston—Calhoun
Sellers, W. L., Jr.	Mobile—Mobile
Sentell, J. H.	New Hope—Madison
Sewell, J. F.	Wetumpka—Elmore
Shaddix, M. L.	Montgomery—See Clay
Shamblin, J. L.	Tuscaloosa—Tuscaloosa
Shamblin, J. R.	Tuscaloosa—Tuscaloosa
Shamblin, R. D.	Tuscaloosa—Tuscaloosa
Shamblin, W. G.	Tuscaloosa—Tuscaloosa
Shanks, R. G.	Autaugaville—Autauga
Shannon, P. W.	Birmingham—Jefferson
Shaw, R. E.	Whatley—Clarke
Shaw, R. W.	Gilbertown—Choctaw
Shelamer, A. M.	Huntsville—Madison
Shell, J. R. (S.)	Abbeville—Henry
Shell, L. P.	Abbeville—Henry
Shelton, J. B.	Birmingham—Jefferson
Shelton, S. W.	Montgomery—Montgomery
Shepherd, R. H.	Jasper—Walker
Sheppard, J. T.	Gadsden—Etowah
Sherer, R. J. (S.)	Birmingham—**See** Jefferson
Sherman, C. R.	Bay Minette—Baldwin
Sherman, Morris	Sylacauga—Talladega
Sherrill, J. D.	Birmingham—Jefferson
Shirley, J. E.	Tuscaloosa—Tuscaloosa
Shores, S. S.	Carbon Hill—Walker
Shropshire, C. W.	Birmingham—Jefferson
Shugerman, H. P.	Birmingham—Jefferson
Sibley, B. D.	Birmingham—Jefferson
Sigrest, O. R.	Attalla—Etowah
Silbermann, S. J.	New Haven—**See** Jefferson
Silvey, G. E.	Gadsden—Etowah
Simmons, S. C., Jr.	Fairfax—Chambers
Simon, H. E.	Birmingham—Jefferson
Simpson, H. M.	Florence—Lauderdale
Simpson, John Wesley	Parrish—Walker
Simpson, John William	Birmingham—Jefferson
Simpson, W. C.	Florence—Lauderdale
Sims, A. G., Jr.	Rt. 8, Birmingham—Jefferson
Sims, J. A.	Renfroe—Talladega
Siniard, E. C.	Birmingham—Jefferson
Sizemore, D. M.	Sulligent—Lamar
Skinner, I. C.	San Antonio—**See** Dallas
Skinner, M. M.	Selma—Dallas
Skinner, P. B.	Fairhope—Baldwin
Sledge, E. S.	Mobile—Mobile
Sloan, E. F.	Columbiana—Shelby
Smelo, L. S.	Birmingham—Jefferson
Smith, C. H.	Birmingham—Jefferson
Smith, D. D. (S.)	Birmingham—Jefferson
Smith, E. B.	Birmingham—Jefferson
Smith, F. C.	Bessemer—Jefferson
Smith, G. H.	Ensley, Birmingham—Jefferson
Smith, G. R.	Ozark—Dale
Smith, H. R.	Birmingham—Jefferson
Smith, J. C.	Birmingham—Jefferson
Smith, J. D.	Eutaw—Greene
Smith, J. G.	Birmingham—Jefferson
Smith, J. H.	Selma—Dallas
Smith, J. P.	Eutaw—Greene
Smith, J. S.	Montgomery—Montgomery
Smith, M. E. (S.)	Parrish—Walker
Smith, Murray	Tuskegee—Macon
Smith, Rayford A.	Monroeville—Monroe
Smith, T. L.	Birmingham—Jefferson
Smith, V. D. (S.)	Leeds—Jefferson
Smith, W. H. Y.	Montgomery—Montgomery
Smith, W. L.	Wetumpka—Elmore
Snoddy, S. J.	Russellville—Franklin
Snow, J. S.	Birmingham—Jefferson
Snow, J. W., Jr.	Palos—Jefferson
Snow, W. R.	Jasper—Walker
Somerset, S. M.	Birmingham—Jefferson
Sorrell, L. E.	Birmingham—Jefferson
Sowell, J. L.	Jasper—Walker
Sparks, D. H.	Birmingham—Jefferson
Spearman, G. K.	Anniston—Calhoun
Speir, H. P.	Greenville—Butler
Speir, P. V.	Greenville—Butler
Speir, R. C.	Jackson, Miss.—**See** Wilcox
Spies, T. D.	Birmingham—Jefferson
Spira, Victor	Birmingham—Jefferson
Spitzberg, R. H. (S.)	Mobile—Mobile
Spratt, R. D.	Livingston—Sumter
Spruell, W. H.	Russellville—Franklin
Spruill, G. E.	Ethelsville—Pickens
Stabler, A. A.	Greenville—Butler
Stabler, A. L.	Birmingham—Jefferson
Stabler, E. V.	Greenville—Butler
Stabler, L. V.	Greenville—Butler
Staggers, W. L.	Benton—Lowndes
Stallworth, C. J.	Thomaston—Marengo
Stallworth, E. L.	Evergreen—Conecuh
Stallworth, J. P.	Canoe—Escambia
Stallworth, R. W.	Evergreen—Conecuh
Stallworth, W. A.	Frisco City—Monroe
Stanley, W. A.	Montgomery—**See** Coffee
Stansberry, C. L.	Oneonta—Blount
Stayer, Glenn	Birmingham—Jefferson
Stephens, A. R.	Delta—Clay
Stephens, B. A.	Lineville—Clay
Stephens, D. D.	Slocomb—Geneva
Stephens, S. H.	Mobile—Mobile
Stephens, W. C.	Mobile—Mobile
Stevenson, F. C.	Montgomery—Montgomery
Stevenson, W. W.	Roanoke—Randolph
Stewart, G. E.	Fayette—Fayette

Name	Town and County
Stewart, J. J. (S.)	Birmingham—Jefferson
Stewart, R. C.	Sylacauga—Talladega
Stewart, R. L. (S.)	Bessemer—Jefferson
Stewart, R. T.	Acmar—**See** Jefferson
Stewart, Vera B.	Birmingham—Jefferson
Stewart, W. P.	Troy—Pike
Stickley, C. S.	Montgomery—Montgomery
Stinson, W. E.	Gadsden—Etowah
Stitt, Frank	Cullman—Cullman
Stock, R. P.	Childersburg—Talladega
Stockton, F. E.	Birmingham—Jefferson
Stone, J. J.	Pratt City—Jefferson
Stough, W. V.	Montgomery—Montgomery
Stovall, H. C.	Pinckard—Dale
Stringer, M. S.	Florence—Lauderdale
Strock, C. S.	Verbena—Chilton
Stuart, W. W.	Selma, Rt. 1—Dallas
Stuteville, Ethel	Birmingham—Jefferson
Suggs, S. D.	Montgomery—Montgomery
Summers, W. P.	Toney—Madison
Sumner, I. C.	Mobile—Mobile
Swann, C. L.	Birmingham—Jefferson
Sweeney, D. P B. (S.)	Birmingham—Jefferson
Taggard, J. G., Jr.	Jasper—Walker
Talley, D. F.	Birmingham—Jefferson
Tankersley, Ernest	Samson—Geneva
Tankersley, James	Prattville—Autauga
Tankersley, William	Hope Hull—Montgomery
Tarwater, J. S.	Tuscaloosa—Tuscaloosa
Tatum, A. F., Jr.	Tuscaloosa—Tuscaloosa
Tatum, S. C.	Center—Cherokee
Taylor, C. H.	Bankhead—Walker
Taylor, E. E.	Crichton—Mobile
Taylor, G. M.	Prattville—Autauga
Taylor, J. L.	Mobile—Mobile
Taylor, Richard V., Jr.	Mobile—Mobile
Taylor, T. F.	Tuskegee—Macon
Taylor, W. R.	Town Creek—Lawrence
Teague, E. B., Jr.	Talladega—Talladega
Teasley, G. H.	Rochester, Minn—**See** Limestone
Terhune, S. R.	Birmingham—Jefferson
Terrill, E. C.	Mobile—Mobile
Terrill, J. W.	Ensley, Birmingham—Jefferson
Terry, L. L.	Sylacauga—Talladega
Thacker, V. J.	Dothan—Houston
Thetford, J. D.	America—Walker
Thigpen, C. A.	Montgomery—Montgomery
Thigpen, F. M.	Montgomery—Montgomery
Thomas, A. E.	Montgomery—Montgomery
Thomas, B. F.	Auburn—Lee
Thomas, E. M.	Prattville—Autauga
Thomas, H. H.	Birmingham—Jefferson
Thompson, J. A.	Pine Apple—Wilcox
Thompson, W. A.	Citronelle—Mobile
Thorington, T. C.	Montgomery—Montgomery
Thrower, B. F.	Enterprise—Coffee
Thuss, C. J.	Birmingham—Jefferson
Thuss, W. G.	Birmingham—Jefferson
Tillman, J. S.	Clio—Barbour
Timberlake, Landon	Birmingham—Jefferson
Tippins, H. K.	Geneva—Geneva
Tippins, J. R.	Hartford—Geneva
Tisdale, W. C.	Mt. Vernon—Mobile
Toole, A. F.	Talladega—Talladega
Towns, T. M.	Oneonta—Blount
Townsend, J. M. (S.)	Birmingham—Jefferson
Trammell, E. L.	Ft. Payne—DeKalb
Trapp, W. R.	Tuscumbia—Colbert
Treherne, A. J.	Atmore—Escambia
Trice, D. H.	Boligee—Greene
Trucks, J. F.	Birmingham—Jefferson
Trumper, Abraham	Montgomery—Montgomery
Tucker, E. W.	Fairfield—Jefferson
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Tucker, W. C.	Birmingham—Jefferson
Turlington, L. F.	Birmingham—Jefferson
Turner, W. H.	Dothan—Houston
Tyler, R. E.	Birmingham—Jefferson
Tyler, R. E. L.	Tuscaloosa—Tuscaloosa
Underwood, A. J.	Spruce Pine—Franklin
Underwood, F. R.	Red Bay—Franklin
Underwood, N. P.	Russellville—Franklin
Underwood, O. O.	Phil Campbell—Franklin
Underwood, S. S.	Birmingham—Jefferson
Ussery, G. C.	Roanoke—Randolph
Ussery, J. A.	Courtland—Lawrence
Vance, J. G.	Birmingham—Jefferson
Vandiver, H. G.	Princeton—Jackson
Van Sant, J. W.	Piedmont—Calhoun
Van Sant, T.' E.	Piedmont—Calhoun
Van Wezel, Norman	Montgomery—Montgomery
Vaughan, A. E.	Geneva—Geneva
Venning, E. W.	Guntersville—Marshall
Waddell, J. R.	Rogersville—Lauderdale
Wainwright, S. P.	Birmingham—Jefferson
Walden, J. D.	Florence—Lauderdale
Waldrep, A. C.	Red Bay—Franklin
Waldrop, A. M.	Jasper—Walker
Waldrop, R. W.	Bessemer—Jefferson
Walker, A. A.	Birmingham—Jefferson
Walker, A. M.	Tuscaloosa—Tuscaloosa
Walker, H. O.	Huntsville—Madison
Walker, H. S. J.	Mobile—Mobile
Walker, J. E.	E. Tallassee—Tallapoosa
Walker, L. M.	Jasper—Walker
Walker, Moody	Huntsville—Madison
Wall, Conrad	Forest Home—Butler
Wallace, A. D.	Plantersville—Dallas
Wallace, G. O.	Clayton—Barbour
Wallace, S. H.	Birmingham—Jefferson
Walls, J. J.	Alexander City—Talladega
Walton, Mary (S.)	Opelika—Lee
Ward, H. S.	Birmingham—Jefferson
Ward, J. K.	Bainbridge, Md.—**See** Jefferson
Ward, W. R.	Birmingham—Jefferson
Warren, C. M.	Mobile—Mobile
Warren, T. A.	Auburn—Lee
Warren, W. E.	Mentone—**See** Jefferson
Warrick, G. W.	Birmingham—Jefferson
Warrick, W. D.	Birmingham—Jefferson
Warwick, B. B.	Talladega—Talladega
Washam, Marvin	Talladega—Talladega
Waters, H. W.	Opp—Covington
Waters, H. W., Jr.	Montgomery—Montgomery
Watkins, H. S.	Coal Valley—Walker
Watkins, J. Harold	Montgomery—Montgomery
Watkins, M. A.	Birmingham—Jefferson
Watkins, M. L.	Glenwood—Crenshaw
Watson, Jerre	Anniston—Calhoun
Watson, J. A.	Springville—St. Clair
Watson, R. H.	Georgiana, RFD—Butler
Watterston, Charles	Birmingham—Jefferson
Watwood, J. A.	Arab—Marshall
Weatherford, Z. L.	Red Bay—Franklin
Weatherly, G. I., Jr	Ft. Payne—DeKalb
Weathington, Lee	Guntersville—Marshall
Weaver, F. C.	Anniston—Calhoun
Weaver, T. H.	Birmingham—Jefferson
Webb, Virginia E.	Mobile—Mobile
Webster, H. N., Jr.	Mobile—Mobile
Weidner, G. L.	Elba—Coffee
Weil, C. K.	Montgomery—Montgomery
Weinrib, Jos.	Montgomery—Montgomery
Weissinger, W. T.	Eutaw—Greene
Welch, O. W.	Fairfield—Jefferson
Welch, S. H.	Birmingham—Jefferson
Weldon, H. S.	Lanett—Chambers
Weldon, J. M.	Mobile—Mobile

Name	Town and County
West, O. T.	Fairfield—Jefferson
Westcott, W. B.	Montgomery—Montgomery
Wheeler, N. A.	Lafayette—Chambers
Wheeler, N. A., Jr.	Lafayette—Chambers
Whetstone, A. K.	Sylacauga—Talladega
Whigham, A. L.	Newville—Henry
Whitaker, J. E.	Huntsville—Madison
White, A. L.	Thomasville—Clarke
White, A. M.	Hartselle—Morgan
White, H. C.	Ft. Walton, Fla.—See Clay
White, M. S.	Hamilton—Marion
White, R. L.	Mt. Andrew—Barbour
White, W. E.	Anniston—Calhoun
White, W. W.	Center—Cherokee
Whitehead, F. F.	Neosho, Mo.—See Blount
Whitehead, V. E.	Blountsville—Blount
Whiteside, H. B.	Ohatchee—Calhoun
Whiteside, J. M.	Anniston—Calhoun
Whiteside, M. S.	Cullman—Cullman
Whitfield, J. T.	Elkmont—Limestone
Whitman, C. R.	Tuscumbia—Colbert
Whitney, O. H.	Carbon Hill—Walker
Wiesel, B. H.	Birmingham—Jefferson
Wikle, J. O.	Madison—Madison
Wiley, C. C.	Birmingham—Jefferson
Wilkerson, A. F.	Marion—Perry
Wilkerson, F. W.	Montgomery—Montgomery
Wilkerson, W. W.	Montgomery—Montgomery
Wilkinson, D. L.	Birmingham—Jefferson
Wilkinson, H. B.	Bishopville, S. C.—See Montgomery
Wilkinson, J. E. Jr.	Prattville—Autauga
Wilkinson, J. G.	Cottonwood—Houston
Wilks, A. E.	Powderly—Jefferson
Williams, G. N.	Linden—Marengo
Williams, H. B.	Birmingham—Jefferson
Williams, James	Jacksonville—Calhoun
Williams, J. H.	Fairfield—Jefferson
Williams, J. R.	Selma—Dallas
Williams, K. B.	Hartford—Geneva
Williams, S. J.	Livingston—Sumter
Williams, W. C.	Bridgeport—Jackson
Williams, W. J.	Nigeria, Africa—See Jefferson
Williamson, Byrn	Birmingham—Jefferson
Williamson, E. O.	Gurley—Madison
Williamson, George William	Bessemer—Jefferson
Willis, C. A.	Montgomery—Montgomery
Wilson, C. H.	Fairfield—Jefferson
Wilson, Cunningham	Birmingham—Jefferson
Wilson, D. W.	Fyffe, Rt. 2—DeKalb
Wilson, F. C.	Birmingham—Jefferson
Wilson, J. D.	Birmingham—Jefferson
Wilson, J. L.	Hackleburg—Marion
Wilson, J. M.	Mobile—Mobile
Wilson, J. W.	Tuscaloosa—Tuscaloosa
Wilson, L. E.	Birmingham—Jefferson
Wilson, O. E.	Birmingham—Jefferson
Wilson, R. K.	Montgomery—Montgomery
Wilson, W. E.	Russellville—Franklin
Wimberly, G. B.	Reform—Pickens
Windham, L. A.	Luverne—Crenshaw
Windham, S. W. (S.)	Geneva—Geneva
Winn, L. M. (S.)	Birmingham—Jefferson
Winslow, R. C.	Sylacauga—Talladega
Winters, H. B.	Red Level—Covington
Winters, H. H.	Tuskegee—Macon
Wise, I. M.	Mobile—Mobile
Wishik, J. L.	Montgomery—Montgomery
Wiygul, C. H.	Fairfield—Jefferson
Wood, A. A. (S.)	Mobile—Mobile
Wood, F. R.	Heflin—Cleburne
Wood, G. L.	Andalusia—Covington
Wood, J. W.	Hanceville—Cullman
Wood, W. G.	Lafayette—Chambers
Woodall, P. S.	Birmingham—Jefferson
Woodley, L. S. (S.)	Andalusia—Covington
Woodruff, G. G.	Anniston—Calhoun
Woods, A. W.	Birmingham—Jefferson
Woods, T. B.	Dothan—Houston
Woodson, L. G., Jr.	Birmingham—Jefferson
Woodson, R. C.	Birmingham—Jefferson
Woolf, J. H.	Piedmont—Calhoun
Word, S. B.	Birmingham—Jefferson
Wren, E. B.	Talladega—Talladega
Wrenn, W. J.	Sumterville—Sumter
Wright, D. H.	Berry—Fayette
Wright, D. O.	Birmingham—Jefferson
Wright, L. R.	Heflin—Cleburne
Wright, R. A.	Mobile—Mobile
Wright, R. D.	Sheffield—Colbert
Wright, S. W.	Bessemer—Jefferson
Yancey, G. C.	Tuskegee—Macon
Yarbrough, C. S.	Auburn—Lee
Yarbrough, J. F.	Montgomery—See Houston
Yelton, C. L.	Ensley, Birmingham—Jefferson
Young, A. C.	Bessemer—Jefferson
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Zieman, A. H.	Mobile—Mobile
Zieman, S. A.	Mobile—Mobile
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Armistead, S. D.	Robertsdale—Baldwin
Ballard, E. H.	Birmingham—Jefferson
Barr, Edward	Birmingham—Jefferson
Baugh, W. P.	Decatur—Morgan
Beard, R. S.	Huntsville—Madison
Belcher, W. R.	Birmingham—Jefferson
Bell, J. E.	Trafford, Rt. 1—Blount
Bell, W. H.	Dozier—Crenshaw
Belue, J. C.	Rogersville—Lauderdale
Berry, J. C.	Trussville—Jefferson
Black, J. B.	Vernon—Lamar
Black, J. H.	Montgomery—Montgomery
Blanton, Frank	Saragossa—Walker
Bogle, J. H.	Collinsville—DeKalb
Booth, W. M.	Hartselle—Morgan
Boswell, F. A.	Elmore—Elmore
Boyd, A. F.	Emelle—Sumter
Boyd, L. M.	Waugh—Montgomery
Bradford, F. D.	Birmingham—Jefferson
Breeland, E. E.	Section—Jackson
Brewer, H. H.	Birmingham—Jefferson
Brooks, A. O.	Lincoln, Rt. 1—Talladega
Brooks, R. L.	Phoenix City, Rt. 2—Russell
Brothers, W. H.	Talladega—Talladega
Broughton, N. J.	Birmingham—Jefferson
Brown, W. L.	Birmingham—Jefferson
Bryant, H. C.	Birmingham—Jefferson
Burwell, E. S.	Birmingham—Jefferson
Busby, E. D.	Parrish, Rt. 1—Walker
Calhoun, S. J.	Langdale—Chambers
Cameron, R. A.	Fairfield—Jefferson
Campbell, V. O.	Billingsley—Autauga
Cashin, N. E.	Decatur—Morgan
Chenault, J. W.	Tuskegee Institute—Macon
Cherry, S. O.	Huntsville—Madison

Name	Town and County
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Clements, M. D.	Birmingham—Jefferson
Cochran, J. P.	Birmingham—Jefferson
Cochran, W. W.	Brilliant—Marion
Coffey, G. W.	Gadsden—Etowah
Coleman, H. N.	Ft. Deposit—Lowndes
Collins, F. A.	Beaverton—Lamar
Dale, H. L.	Birmingham—Jefferson
Darden, J. W.	Opelika—Lee
Dasher, J. M.	Dothan—Houston
Dawkins, J. T.	Ensley—Jefferson
Demby, L. S.	Bessemer—Jefferson
Denny, T. H.	Wadley—Randolph
Dibble, E. H.	Tuskegee—Macon
Dinkins, Pauline	Selma—Dallas
Donehoo, J. H.	Abernant—Tuscaloosa
Dowdy, R. W.	Opp, Rt. 3—Covington
Dozier, Byron	Birmingham—Jefferson
Drake, W. L.	Fairfield—Jefferson
Dwiggins, H. G.	Tuskegee—Macon
Elkourie, H. A.	Birmingham—Jefferson
Elliott, T. C.	Butler—Choctaw
Espy, Curtis	Midland City—Dale
Farrior, L. B.	Mobile—Mobfle
Fennell, R. F.	Guntersville—Marshall
Fields, A. C.	Ensley—Jefferson
Fields, E. T.	Ensley—Jefferson
Fleming, J. C.	Hartford—Geneva
Flippo, L. N.	Mobile—Mobile
Floyd, Ashby	Phoenix City—Russell
Foster, J. E.	Mobile—Mobile
Franklin, J. A.	Mobile—Mobile
Fussell, J. A.	New Brockton—Coffee
Garrett, J. D.	Montgomery—Montgomery
Gessler, I. W. (S.)	Chickasaw—Mobile
Gibbs, J. A.	Gainesville—Sumter
Giscombe, C. S.	Avondale—Jefferson
Gomez, C. J.	Union Springs—Bullock
Goode, E. B.	Mobile—Mobile
Graf, C. C.	Steppville—Cullman
Grambling, J. W.	Center—Cherokee
Gramling, A. B.	Attalla—Etowah
Green, A. C.	Birmingham—Jefferson
Gumbs, O. S.	Huntsville—Madison
Haggard, D. C.	Sylvania—DeKalb
Hagler, P. L.	Birmingham—Jefferson
Hale, Prior	Vinemont, Rt. 2—Cullman
Ham, N. M.	Opp—Covington
Hancock, M. W.	Powhatan—Jefferson
Hankins, J. M.	Birmingham—Jefferson
Hanna, H. P.	Birmingham—Jefferson
Haralson, T. H.	Cusseta—Chambers
Harmon, J. S.	Elmore—Elmore
Harris, S. F.	Birmingham—Jefferson
Hausman, C. P.	Coaling—Tuscaloosa
Hayes, Charles	Fyffe—DeKalb
Head, W. H.	Cullman—Cullman
Hendrix, C. V.	Oneonta—Blount
Hicks, L. J.	Florence—Lauderdale
Hudson, V. T.	Mobile—Mobile
Huey, B. M.	Ensley, Birmingham—Jefferson
Hunt, J. E.	Anniston—Calhoun
Hutchinson, J. E.	Birmingham—Jefferson
Innis, S. B.	Mobile—Mobile
Jackson, F. D.	Anniston—Calhoun
Jeter, M. L.	Sylacauga—Talladega
Johantgen, J. F.	Talladega—Talladega
Johns, S. W.	Goodwater—Coosa
Johnson, R. E.	Birmingham—Jefferson
Jones, E. H.	Talladega—Talladega
Jones, J. F.	Cuba—Sumter
Jones, T. W.	Loxley—Baldwin
Jones, W. A.	Sylacauga—Talladega
Jordan, D. C.	Guntersville—Marshall
Kebe, G. B.	Phoenix City—Russell
Kelly, J. P.	Talladega—Talladega
Killgore, J. J.	Wadley—Clay
Kincaid, J. L.	Bessemer—Jefferson
Kirklin, M. A.	Prichard—Mobile
Lane, L. T.	Prichard—Mobile
Lanford, W. B.	Columbia—Houston
Lange, C. E. F.	Chickasaw—Mobile
Lee, E. F.	Gastonburg, Rt. 1—Marengo
Legare, J. K.	Forkland—Greene
Lightcap, C. A.	Mobile—Mobile
Lilly, R. E.	Bessemer—Jefferson
Lindsey, E. A.	Opelika—Lee
Long, Henry	Florence—Lauderdale
Long, T. F.	Montgomery—Montgomery
Maclin, R. B.	Birmingham—Jefferson
Manasco, Titus	Carbon Hill—Walker
Maneval, K. E.	Leeds—Jefferson
Marshall, W. S.	Mobile—Mobile
Mason, F. H.	Brewton—Escambia
Matthews, H. O.	Bessemer—Jefferson
May, F. H.	Birmingham—Jefferson
Mayfield, S. F.	Tuscaloosa—Tuscaloosa
McCall, M. G.	Birmingham—Jefferson
McCarn, D. W.	Warrior—Jefferson
McCay, T. C.	Pinson—Jefferson
McClurkin, W. N.	McWilliams, Rt. 1—Wilcox
McCoo, T. V.	Eufaula—Barbour
McCrary, D. W.	Town Creek—Lawrence
McCullar, J. A.	Russellville—Franklin
McKenzie, A. B.	Tuscaloosa—Tuscaloosa
McKinley, C. F.	Atmore—Escambia
McLean, J. N.	Snowdoun—Montgomery
McPherson, C. A. J.	Birmingham—Jefferson
Meeks, A. A.	Foley—Baldwin
Meharg, R. L.	Alexandria—Calhoun
Merritt, T. E.	Flattop—Jefferson
Miller, I. S.	Mobile—Mobile
Milner, S. R.	Eclectic, Rt. 1—Elmore
Minderhout, J. W.	Ensley, Birmingham—Jefferson
Mitchell, A. S.	Birmingham—Jefferson
Moore, G. A.	Eutaw—Greene
Moten, P. S.	Birmingham—Jefferson
Newman, J. H.	Birmingham—Jefferson
Noel, W. E.	Boaz—Marshall
Nutter, R. A.	Demopolis—Marengo
Oden, G. E.	Mobile—Mobile
Overton, J. W.	Mobile—Mobile
Owen, H. G.	Rt. 2, Quinton—Walker
Palmer, C. R.	Sheffield—Colbert
Patterson, R. R.	Birmingham—Jefferson
Patton, M. K.	Selma—Dallas
Payne, T. H.	Birmingham—Jefferson
Peavy, J. F., Jr.	Atmore—Escambia
Peters, R. H.	Mobile—Mobile
Pettus, W. D.	Montgomery—Montgomery
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Miscellany

PENICILLIN AND SULFA DRUGS BRING RELIEF TO SINUS SUFFERERS

Sulfanilamide and penicillin drugs are proving highly successful in the treatment of sinusitis, an infection localized in the sinuses, or air pockets in the bones of the face and skull, according to William W. Bolton, M. D., of the Bureau of Health Education of the American Medical Association.

Writing in the current issue of Hygeia, Dr. Bolton says: "Perhaps the most frequent cause of sinusitis is the common cold, that sets up conditions tending to obstruct easy drainage of the sinuses. Once implanted, germs may continue to grow, depending on their own virulence and the resistance of the host."

Among the less common causes of sinus infection the author lists "working in smoky, dusty atmospheres, experiencing frequent extremes of temperature, and swimming. Immersion of the head has the inevitable result of filling the sinuses with water. In most people, it runs out freely and no harm is done, but in some the involuntary 'irrigation' results in infection."

"With the sulfa drugs and penicillin, physicians are finding the battle with sinusitis less of a problem," Dr. Bolton writes. "The drugs are now being used in a two-way attack. First, they may be given internally, that is by mouth or injection beneath the skin. In this way they are carried to all parts of the body, including the sinuses, in the blood stream. Thus, a 24 hour a day bombardment of the infecting germs is possible. In addition, these germ killers can be applied locally in the form of solutions, powders or sprays. Infected sinuses can be irrigated at regular intervals. A special form of penicillin spray known as aerosol penicillin, which is an extremely finely divided mist, has proved of special value in many cases. The microscopic droplets have the ability to penetrate remote, almost inaccessible areas high up in the nose, and points of infection which could not be reached, except perhaps through employment of extensive surgery, are put under control."

Additional avenues to attack sinusitis have been uncovered with newly acquired knowledge about the way the infection de-

velops and progresses, according to the author. "It has been found that in a fairly large proportion of sufferers there is a definite evidence of some form of allergy. In such persons, as any hay fever sufferer knows, a prominent symptom is blocking of the nose and an outpouring of large amounts of watery secretion. The blocking is the result of marked swelling of the mucous structures within the nose. When this occurs, the openings from the sinuses are blocked too. As a result the secretion collects within these hollow cavities, and the stage is set for growth of germs, acute infection and then a chronic condition. If the allergy problem is not solved, swellings occur periodically, and just as periodically there will be a flare-up in the sinus disturbances. Sometimes these patients have developed a special sensitivity to the germs present in their own sinuses and air passages. Sometimes the allergy is related to certain foods, to dusts not ordinarily considered causes of sensitivity, to medicine which may be taken regularly, even to cosmetics. In any case, specific treatment in the form of vaccine or some other means of desensitization can be given."

WOMEN SHOW POISON REACTION TO ACID USED IN "COLD WAVE"

DOCTOR SAYS ALLERGIC AND ANEMIC PERSONS ARE MOST LIKELY VICTIMS; ACID MAY CAUSE DAMAGE TO LIVER

An acid used in the process of hair curling known as a "cold wave" has been found to produce symptoms of poisoning in allergic and anemic persons, according to Lawrence H. Cotter, M. D., of New York.

Writing in the June 15 issue of The Journal of the American Medical Association, Dr. Cotter, who is from the Department of Medicine, College of Physicians and Surgeons, Columbia University and the Presbyterian Hospital in New York, says that the "cases in which a toxic reaction has been observed appear to be on the increase."

The author attributes the recent increase in cold wave poisoning to the fact that the "process is more widely advertised, and cheaper, with the result that less skilled operators now employ it. Its former high price confined its use to a small clientele in the better class establishments."

Experience with patients having thioglycolic acid poisoning indicates, the author says, that "persons suffering from allergies and anemias are the most likely victims, but the acid has an established affinity for the protein molecule, and liver damage to some extent may be anticipated from prolonged exposure in any individual." However, in the majority of cases recovery occurs without permanent liver damage when the exposure is promptly terminated.

Thioglycolic acid has been used in industry as an iron indicator with no reported ill effects on the handlers.

Some of the major symptoms noted among the patients have been swelling of the face, arms and legs, appearance of an itching rash, and loss of hair.

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PSYCHONEUROSES AND WORLD WAR II

WILMOT S. LITTLEJOHN, M. D.
Birmingham, Alabama

A psychoneurosis is not a conscious effort on the part of an individual to shirk his duty. It is entirely beyond his conscious control.

Today, every physician is confronted with an unprecedented number of psychoneuroses, both among civilians and among ex-service men and women. During the recent war the neuropsychiatric disorders became one of the major problems of every medical officer in all branches of the armed forces. In Navy hospitals it was quite the usual thing for twenty to thirty percent of the hospital beds to be occupied by neuropsychiatric patients, and I am sure that this fact held true for other branches of the Armed Services. This condition existed in the advance hospitals, the evacuation hospitals, the base hospitals in the Continental United States, and the convalescent hospitals. In addition to this, there were large numbers of patients handled by the other departments of these hospitals whose chief disability was psychiatric. Also, large numbers of personnel with psychiatric disorders never reported to medical officers, and many of these are only being seen after their separation from the Service by civilian and Veterans Facility physicians.

Most of the functional nervous disorders we saw during the War, and are seeing today, cannot be attributed to combat duty or actual warfare. In fact the great majority will give histories of previous aberrations or frailties of the nervous system. We must remember that many men who are successful in making adjustments to civilian life can not adapt themselves to service life or the constant emotional trauma of wartime conditions.

A large percentage of the psychoneuroses that developed in the armed forces appeared within the first few months after induction into the Services, and of those appearing within that period almost 100 percent of them had histories of at least similar minor disturbances before induction. It is unfortunate that they should have been inducted into the Service for several reasons: (1) time was lost in the mobilization program by induction, partial training, and usually hospitalization and discharge; (2) a psychoneurotic episode of some type was precipitated by the induction; and (3) the self-esteem of the man frequently suffered. These are unfortunate circumstances that must be charged to the exigencies of war where the individual must, necessarily, be submerged in the mass movement toward the goal of total mobilization for victory.

Those who should obviously have been eliminated before enlistment or early in training are the men who had criminal records; the alcoholic who has been in legal difficulties repeatedly; the chronic job changer, those with functional somatic complaints, the queer or odd individual, the individual who suffered undue anxieties or nervous tensions, the chronic malicious fault finder and malcontent, and those who have been subject to extreme emotional swings. Granted the elimination of these could be accomplished, we would thereby eliminate the great majority of our psychoneuroses in war. We would then have left only the relatively few real war neuroses

Read before the Association in annual session, Birmingham, April 16, 1946.

or hysterias which are usually dramatic, transient, and amenable to treatment. This patient developed an escape mechanism for protection against danger and anxiety. To prevent the fixation of this protective mechanism, removal of the patient from combat was often necessary. Sometimes discharge from the Service was essential. The theoretically normal personality would be so unusual that he would be considered abnormal; therefore, we had to depend for our manpower on that great reservoir of average man. Hence, we will and do have psychoneuroses increased following the recent War.

In this postwar period we will certainly have an unprecedented number of psychoneuroses to deal with, both among civilians and soldiers, because in total war everyone is subjected to psychic trauma. This trauma may be privation, high-speed production in plants, actual combat, subjection of civilians to raids, anxiety for loved ones in combat duty, anxiety of combatants for families in potential danger zones, financial insecurity of families where the breadwinners were in the Service, sexual deprivation, or the disintegration of programs for economic security which the men, who had abandoned lucrative civilian vocations for the Services, must expect; also, the more intangible things, such as the uncertainties of the future of world affairs and the general political and social unrest.

The greatest group of psychoneuroses have seemed to divide themselves roughly into the anxiety neuroses, the hysterias, and the neurotic behavior patterns of the true "war neurosis."

The anxiety states developed chiefly among those recently inducted, those awaiting transfer to other duties or stations, those in transit to combat zones, and those actually awaiting imminent action.

The most common symptoms of these anxiety states have usually been one or more of the following: Restlessness, apprehension, crying, undue fatigue, vomiting, gastric distress, diarrhea, frequent urination, insomnia, nightmares, bedwetting, headaches, panic states with nervous tensions, and tremors. Sometime they may become over-energetic in their duties and somewhat confused by their preoccupation, therefore accomplishing very little in spite of their evident industriousness. Loss of weight may be pronounced. Those who have actually been in combat duty are quite prone to mild panic states at the sound of airplanes or sudden noises, a commonly seen manifestation being the "startle reaction."

Those patients with anxiety states responded readily to rest, reassurance and understanding. This response was usually only temporary and reassurance had to be repeated again and again. They also usually gained a feeling of security in the hospital and soon become well adjusted to their surroundings. However, the slightest confusion or disturbance in the wards or a break in the normal routine was quite likely to precipitate a neurotic episode with all of its previous manifestations. Recreation and occupational therapy, with psychotherapy, assisted materially in keeping the patients adjusted to the hospital and content until their disposition could be determined and accomplished. It has been observed by many medical officers that the patients who have been subjected to air attacks have shown an unusual interest in building and assembling model airplanes. They have shown great pride in these; fondle them, fly them, and master them with extreme satisfaction. They become relaxed and their anxiety states recede. Then a real plane would suddenly sweep low over the hospital and their symptoms would appear in all manifestations. Practically all of these patients required discharge from the Service before an appreciable return to their normal status could be expected. The expectation of return to duty, particularly duty which would subject them to combat action, caused a return of all of their original symptoms. Most of them will return to their normal emotional status upon return to their normal civilian environment. I am sure the majority will show no personality changes or real neurosis in later life unless subjected to repeated trauma or "reverse incentives." The "reverse incentives" will be mentioned later.

Prolonged and intensive psychotherapy was not practical. It was found to be only temporary in its benefits so long as the precipitating factors were still present. We were discouraged by our patients who were apparently cured, adjusted to the Services, anxious to continue their duty, and had obtained a clear insight into their prob-

lems. When confronted with the same situation and factors that sent them to a hospital first, they again broke down and within a matter of one to 4 weeks they were returned to the hospital. In the Navy we had to be particularly careful whom we returned to duty, because that duty might be a vital link in an important task on which the life of a ship and its men depended. There is no place for a weak link in the crew of a warship. So we found that the weak link must be eliminated by discharge from the Service.

So far we have been talking chiefly about the anxiety neuroses that develop in the preexisting psychoneurotic. There is also a group that have no evidence of preexisting psychoneuroses but in whom the potentialities are present. This is the patient who is more liable to develop the dramatic symptoms of hysteria. Under combat duty one is liable to be confronted with hysterical blindness, aphonia, paralysis or amnesia. Also some show acute anxiety neuroses, confusional states, delirium and stupor. As was early noted by the British, those patients were best treated immediately in the proximity of the combat area, and after a short period of complete rest they were removed from the hospital, kept busy, and quickly returned to the battle area or active duty. When these patients were seen in the base hospitals, it was usually too late to rehabilitate them for further combat duty or active service. Very seldom did these symptoms appear in patients who had received major physical wounds in combat.

In the treatment of the above patients the best results were obtained from narcosynthesis, narcosis, group psychotherapy and a quick return to active duty. In one group of severe neuropsychiatric battle casualties we were able to rehabilitate 94 percent for regular duty by returning them to duty within 5 days after they were received at the hospital. The percentage able to be returned to duty decreased astoundingly if retained in the hospital over 7 days.

I have seen numbers of survivors of sea combat ship sinkings who have fought the seas, starvation, and death in open life boats for several weeks but who were in excellent mental condition when rescued. They were almost to a man belligerently anxious and willing to return to combat sea duty. Some of these, however, when given leave to go home, would report back to the sick-bay in a few days in acute panic states and had to be hospitalized for long periods. These symptoms were evidently precipitated by the period of meditation, the contemplation of the trials they were able to survive, and the over solicitation of their families. They were probably required to recount all of the gory details again and again for sympathetic friends to their own eventual undoing. Here, in playing the part of the hero and victim, the actor became an emotional victim of his own portrayal of the melodrama.

From what has been said it is quite evident that the first objective in our fight against and for the psychoneuroses of war should be the early recognition and elimination of the men who will break down under Service conditions.

The preventive measures to forestall these conditions are simple but necessary. Training constantly to meet all emergencies that might arise, without too much morbid contemplation of the dangers of those emergencies, will develop confidence of the men in their own ability and in their officers. It is the unknown that generates fear, and knowledge is its antidote. The confidence that one knows what to do in any situation that might arise will prevent panic when the emergency is faced. "Highly trained men react to the combat situation automatically. Response at an automatic level relieves much tension. The importance of training in providing for the individual in the combat situation can not be overestimated." (Lt. D. B. Vinson, U. S. A. C.)

The average man feels that fear and cowardice are the same thing. When he experiences fear, he immediately believes he is a coward and his ego suffers. He then may become afraid that he will not be able to measure up and that he will show himself a coward to his mates. Fear is a primary and normal instinct. Every normal person experiences fear, but if he is not a coward he goes about the duty at hand. This should be taught to men, for if they understand it they will not be so likely to develop panic. We explained this to many men who were afraid they would prove to be cowards, and they made good records in extremely trying active combat zones. They were more afraid of failure than they were of death itself.

Early recognition of apprehension, nervous tension, dejection, unhappiness and other mild psychoneurotic symptoms is important. These were often relieved by a frank discussion of the problem by an understanding medical or line officer. If the anxiety became more malignant, the individual had to be removed from his outfit before the contagion spread to his comrades.

Frequently these symptoms appeared after long-continued exertion or tension. This lowers the resistance to psychic trauma and can be relieved in the early stages by rest, change of duty and wholesome food. These conditions should probably be classified as fatigue states which overwhelm even previously sound personalities but are characterized by transient neurotic reactions and episodes. Line officers as well as medical men can recognize these early symptoms and frequently forestall disabling results. At one station we were able to give weekly talks over a period of several months to groups of young Naval officers on this one subject. They were to be on duty with small details of enlisted men where no medical care was available. These officers were receptive and some later reported many instances where their information proved of practical value with their crews.

Those who are kept busy are less liable to develop nervous disorders. Therefore the constant training of military forces serves two purposes psychologically. It keeps the men occupied and it develops their confidence in their ability to meet combat conditions. This also holds true for the civilian population during war.

From World War I until now the neuropsychiatric patients of that war have cost the Federal Government over one billion dollars. Each psychoneurotic casualty that can be prevented from this War will save us approximately $30,000 in the next 20 years.

In a total war and a war of nerves there will necessarily be many neuropsychiatric casualties. By a sane and practical approach to the subject many can be prevented. Also many can be salvaged before they become fixed invalids and public charges.

There is, however, a danger that should be carefully guarded against. We will term it the reverse incentive because it is the current which tends to thwart and turn back the progressive efforts toward recovery, convalescence, and rehabilitation to a normal civilian status.

When the dischargee returns home he is self conscious and somewhat apart. Usually his friends, family and community have grown somewhat away from him. His job has changed to some extent. He either has no business or, if he has, it has been in the hands of others and is unfamiliar. If he must reestablish himself, it is under the tremendous handicap of shortage of materials, housing, equipment and contacts. Usually he is financially bankrupt in the midst of competitors who have become financially independent and have business contacts to whom he is a stranger. Frustration after frustration faces him and he develops a feeling of inadequacy and insecurity.

At this low psychological and morale level a veteran's bonus, a veterans pension pittance, a G. I. Bill of Rights allowance, or the benevolence of family and friends is offered. He accepts this and immediately his self esteem or ego suffers. If he is a neuropsychiatric casualty attempting to become readjusted and rehabilitated, inestimable damage may result. The reverse incentive may become activated and the rehabilitation process reversed. The greatest single factor in recovery from a psychiatric disorder of any type is the incentive to get well. Take this away, thwart it, weaken it by whatever means, and in a majority of the cases a neuropsychiatric cripple will result. The veteran only asks justice and an even break. He does not need or want charity, special privileges or pity. He wants above everything an understanding attitude and a fair deal.

Our great Veterans Administration must be helped by the veteran's family physician to avoid putting the recovering neuropsychiatric casualty in the dole class. The veterans hospitals are being swamped by neuropsychiatric casualties of World War II. Many of these will be handicapped throughout life unless discretion, patience, and understanding are practiced by the Veterans Administration, the family, the public, and, above all, the family physician.

THE DEVELOPMENT OF THE ARMY MEDICAL DEPARTMENT

A SHORT SKETCH

H. P. SAWYER, M. D.
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Colonel, Medical Corps, U. S. Army, Retired
Montgomery, Alabama

In May 1942 the writer opened, organized and took command of the Station Hospital at Camp Rucker, Alabama. It was immediately evident that the majority of the incoming medical officers had but slight knowledge of the history of the great Department of which they had become a part, so a short story of its growth was prepared, touching only the high spots and a few interesting details in its history. It was hoped that this story would answer many questions previously asked by these officers and would give them added interest in and pride of accomplishment regarding the organization which they had joined. The warm reception given this modest effort seemed to fulfill that hope.

With the War over and with the return of increasing numbers of our Reserve Officers to civil practice, it has been suggested that this sketch might be of retrospective interest to them and perhaps as well to those who could not take a part in the military machine. At any rate, a simple recital of the humble beginnings, the hard struggles and the vast present achievements of this great organization may cause a thrill of pride in the heart of every physician for the work of his profession in this field.

It seems wise to center this survey about the names, figures and personalities of the various Surgeons General. In this way a more human touch is given and names that are household words in the Army are made more familiar and given their due place in its history.

From 1776 until 1818 there was no man bearing the title and authority of Surgeon General, nor was there any Medical Department worthy of the name. Such an inglorious origin was due to the universal tendency of the great in the profession to take line commands and more to the larval state of medicine in general. Records indicate that in 1776 there were but 200 medical degrees in the whole country. Nor was Britain in much better case. Ample reason there was for Kipling's caustic words:

"Wonderful little, when all is said,
Wonderful little our fathers knew.
Half of their remedies cured you dead,
Most of their teaching was quite untrue.
'Look at the stars when a patient is ill,
(Dirt has nothing to do with disease),
Bleed and blister as much as you will
Blister and bleed him as oft as you please,'
Whence enormous and manifold
Errors were made by our fathers of old."

Actual medical records of those days are almost non-existent. A few diaries, journals and letters are all that give any clue to the state of medicine in our embryonic Army. For the most part, they deal with the small, everyday happenings; in fact, with almost anything but medicine.

James Thacher wrote an interesting, if short, account of the "new" vaccination for smallpox, the most of which was an arm-to-arm transfer, and comments shudderingly on the dismal results therefrom. His gruesome description of an Iroquois method of scalping is worth quoting: "With a knife they make a circular cut from the forehead quite round, just above the ears, then taking hold of the skin with their teeth, they tear off the whole hairy scalp in an instant, with wonderful dexterity." Indians would appear to have had good teeth!

A little note of resigned submission to the inevitable is gathered from his simple comment that, "Despite lack of military status, the medical officer's position was *quite satisfactory.*"

The journal of Isaac Senter is a harrowing account of Arnold's disastrous expedition against Quebec. In that ill-conceived, ill-planned but heroically executed enterprise more than half the little force deserted (quite sensibly, one must admit) and the exhausted, half-starved, discouraged remnant arrived and invested Quebec with but four rounds of ammunition per man. Senter, the sole surgeon with the force (if force it may be called), lost all his medical supplies

except one small pocket lancet. So, as Ashburn remarks, he could bleed if he couldn't blister; and treated pneumonias, pleurisies and smallpox without any sort of medicine, probably better than if supplies had been available.

Those early days without medicines, men, organization or money tell a tale of devotion in the face of unbelievable odds; the quintessence of plain good sense amid fallacious doctrines and near-superstitions. Unfortunately, this fair record was marred by an inexplicable series of intrigue, cabal, political skullduggery and slander which involved General Washington in needlessly distasteful controversy and more than once threatened the Colonial cause itself. It would have been a disgrace to even the most abandoned ward heeler today. It involved such great names as Church, Shippen, Morgan, Stringer, Rush and many others. Four so-called Directors General came and went, of whom one was tried and two were dismissed for cause.

About this time Congress passed a law fining every officer $10.00 and every private $4.00 who should contract venereal disease. The fund thus raised was to be expended for blankets and shirts for sick and wounded soldiers. Neither the amount of the fund nor any improvement in the venereal situation is recorded as accruing. This is the first known effort at venereal disease control in the Army.

One can easily estimate the embryonic state of Revolutionary medicine since all Army regulations as to care of the sick were promulgated by the Inspector General, old Baron von Steuben. As may be expected, therefore, accommodations for sick and wounded were primitive in the extreme. These comprised two or three tents per regiment; two cloth sacks per company to be filled with straw for sick beds, the sacks to be washed, aired and used again and again; one non-commissioned officer per regiment to help along the invalids on the march. It is a travesty to call them "accommodations." Reports, the multiplicity of which is the modern curse of the Army, were limited to a weekly return, if thought necessary, to the Commanding Officer, giving the numbers of sick and their diagnoses. These diagnoses sound quaint in these days. Fluxions, gripes in the guts, dry gripes, breakbone fever and scarlatina rheumatica were often seen—drunkenness even more so.

What with one thing and another, plus his fiery temper, the Baron's troubles were many. His imperfect knowledge of English and his hybrid Flemish-German-French patois often stalled his program of instruction completely and forced him to call upon his Aide, Major Walker, the one accomplished linguist in the Continental Army. It is told of him that, after hours of fruitless labor over a company of dumb recruits, the Baron's temper became a bit frayed. Dashing his elegantly laced chapeau to the ground, he bellowed frantically, "Walkaire, mon bon ami Walkaire, komm hier, venez ici, queek, toute de suite, rrright avay, an' 'elp me mit de vorts. Sacre goddam de gaucherie of dese badauds! I can curse dem no more!" Those of us who have ever attempted the educationally impossible during the last four or five years can sympathize deeply with the harassed old man, even after 150 years.

In 1818 the first real Surgeon General was appointed, Joseph Lovell. His medical department consisted of eight surgeons and forty-five assistant surgeons, doubtless felt to be an extravagant provision. For the operation of his office his estimate for the year 1818 was as follows:

For clerk hire	$1,150.00
Wood, 15 cords @ $6.00 per cord	90.00
Stationery	150.00
Printing blank forms, etc.	100.00
Contingencies	50.00
Total	$1,545.00

As this was merely an estimate, it was probably not authorized in full. A little arithmetic shows that this staggering annual sum was more than spent every minute of the 24 hours in the Surgeon General's Office during the late War.

Lovell was a keen minded and genial soul. This enabled him to work many changes for the better in that small, hidebound Army. He seems to have modified the widely prevalent drunkenness and did institute a system of statistical reports which form the basis of our earliest data regarding the Army. He also began a series of periodical recommendations as to changes for the betterment of the Army as a whole. His main contribution, military or

otherwise, was through his sympathetic support and encouragement of Beaumont in his epoch-making studies on St. Martin. In those days of piffling submission to the minutiae of military formality he had the force, the courage of his convictions and the acute foresight to override most of the regulations which would have prevented that series of investigations. Curiously enough, he began the issuance of regular weather reports, crude in form and detail but surprising as a contribution from a Surgeon General.

He was succeeded by Thomas Lawson in 1838. They gave long service in those days. Together, Lovell and Lawson occupied the office for 45 years. Lawson's total service was 50 years, 25 of them as Surgeon General.

Lawson's first official report shows that the main strength of the Army was 9,748 and that the year's admissions to sick report were 38,559. There seems to have been repeaters in the Army then as now. Four "rides" on the sick book per man per year is no bad indication of either the health or the morale of the Army, or both! Three hundred and twenty of the sick were discharged from service, thirty deserted and 389 died.

An amusing but pathetic letter of Lawson's points the time (1840) when the Medical Department was given a new uniform upon which an aiguillette was substituted for epaulettes. This seemed to Lawson an odious slur on the Department, so, after some reference to his length of service, he writes: "Although my servces have not been attended with such brilliant results as those of some other persons, my military career has certainly not been discreditable to the government. If under those circumstances the Commanding General of the Army could feel himself justified in putting me off with an aiguillette, a piece of tinsel on one shoulder, while he decorates every second lieutenant with an epaulette on each shoulder, and the staff lieutenant with an aiguillette besides, I must be satisfied to remain without a military dress."

Good old Lawson! The epaulettes were restored to his despoiled shoulders.

The Mexican War accentuated Lawson's tenure of office. The peak strength of the Army was 100,454. Twelve thousand eight hundred ninety-six officers and men died, 3,393 were wounded, 454 resigned and 6,725 deserted. Perhaps that is a sufficient comment on so meager an episode. One fact does stand out in this war: in it the first reference is found as to the use of ambulances for evacuation of the wounded. Two fourwheel carts were authorized per regiment but there is no statement as to their actual issue. "Back orders" may have been as prevalent then as in World War II.

Lawson's entire term was one long struggle for the betterment of the Corps—more officers, better pay, better uniforms, definite status and equal rank with the line. He was vigorous, aggressive, determined, full of military ardor, not unlike Leonard Wood who finally forsook the Medical Corps for the allurement of the line. He held temporary line commands twice and once commanded a line regiment. As previously mentioned, the majority of the great in Colonial medicine took line commands at the outbreak of the Revolution: Joseph Warren, Oliver Prescott, John Brooks, John Beatty, John Thomas, Nathaniel Freeman, Hugh Mercer, Arthur St. Clair, Edward Hand, William Irvine, Henry Dearborn and John Knight. Warren, Prescott and Hand wrote their names large in the Revolutionary days. To those who grew up, like myself, in that part of New York State where the Mohawk massacres were almost daily occurrences, Edward Hand's intrepid reprisals for Schenectady, Cherry Valley, Wyoming, Oswaya and Minnesink were almost our first historical lessons.

Our next Surgeon General was Lawrence L. Finley, who held the position for less than a year. His release from the office is probably best explained by Olmstead's scathing characterization: "He was handsome, complacent, self-satisfied, vain and incompetent." During his incumbency, but presumably not from his efforts, the low ebb to which the Department had sunk came to general notice. It was found that there were but 114 officers, no enlisted force and no hospitals worth mentioning for which there were provided no wardmasters or nurses or cooks except those detailed for temporary duty from, and at the whim of, the line.

The fourth Surgeon General was William H. Hammond. He brought to his task intelligence, vigor, experience, commonsense and great force of character. Well might

he have need of all these for it was during his term that the War Between the States was fought.

His first notable act was the appointment of Assistant Surgeon Jonathan Letterman as Medical Director of the Army of the Potomac. No better choice could have been made and it was only just in time. Letterman was an able and aggressive organizer. Estimating the situation accurately, he first improved the system of casualty evacuation to nearly what it should have been. Hammond had given him ample authority and facilities, so, for the first time in its history, the Army had reasonably good evacuation. No one need suppose that he materialized a perfect system at once and out of thin air. Still, compared with the previous method (or lack of method), his accomplishment appears stupendous. It must be remembered that Congress had for years been playing the age-old game of short-changing the Army and that its constituents were no wiser or more helpful than "that blase body of Colonial dignitaries."

Tripler, the preceding Chief Surgeon of McClellan's Army, had not been able to handle the emergency. His talents were professional rather than administrative and he had not been given the backing that was essential to success. Letterman succeeded. Even after the second battle of Manassas the sick and wounded lay untreated for a week or more and the resulting death rate was terrific. Due to Letterman's efforts, by the time Antietam was fought his system was in operation and all casualties were collected and cared for within twenty-four hours. So effective was his system that its principles have been the basis of all plans of evacuation since, modified, naturally, by speedier transportation and more modern weapons.

His plan was based upon the organization of an Army Corps. Captains, first lieutenants, second lieutenants and sergeants commanded the ambulance details respectively. Enlisted men were drawn from the line. Hospitals were so nearly non-existent that he designed and had built those pavilion style installations which were the models for Letterman General Hospital and all type A and B hospitals of World War I. By the time Fredericksburg was fought he had established mobile field hospitals under canvas to which the wounded were speedily transferred for emergency operations and resuscitation. These were at least adequate in number, pretty well equipped and staffed and located with tactical skill. Hammond and Letterman worked together with such coordination that, by the end of 1862, they had provided 151 general hospitals with 58,715 beds, increased by the end of the war to 204 general hospitals and 136,894 beds.

Hammond's force of character was well displayed in his famous "Calomel Order" by which he struck that sacred panacea from the supply tables, to the consternation and horror of the most sanctified inner circle of regular practitioners. Salivation, mercurial gangrene and mercurial keratitis were probably lessened for a time. However, special requisitions were honored, sub rosa, and the Army apparently returned little by little to its mercurial debauch and lost most of its teeth.

Two such forceful people as Hammond and Letterman could hardly remain long in the good graces of that other irresistible force—Secretary Stanton. His persecution (it was little less) of these two invaluable officers resulted in the court-martial of Hammond with dismissal and in the disgusted resignation of Letterman. To a certain extent the old guard of medical officers participated in this infamous procedure but it is not reasonable to suppose that they would have dared run the risk if they had not had Stanton's protection and instigation. It is a matter of satisfaction that Hammond was wholly exonerated of the trumped-up charges but that was not until 1878. In the meantime, penniless, except for contributions by friends, he went to New York where he became a foremost practitioner and teacher of medicine. Letterman settled in San Francisco and died there honored by his colleagues and loved by his many patients.

Here the history of the Department splits. For four devastating years we were occupied with the settlement of our internal differences of opinion. While the medical history of that war is fairly well documented and accurate from the Northern aspect, the Confederacy has no such integrated chronicle. This is due in part to the fact that all these official records are in the archives at Washington and also, in part, to the lack

of anyone with the requisite skill, leisure and enthusiasm to sort out and arrange them. Someone so gifted should make this the work of his declining years.

Such a history should be written. While strictly speaking not a part of the Medical Department of the Army of the United States, that of the Confederacy is as interesting, as important and presents as much food for thought. It should be part and parcel of our service history. Regardless of affiliations, predilections, prejudices and credos; regardless of where in the war were the brains and where the resources; regardless of the outcome in '65; today we are one, welded and rewelded by two wars beside which our own private dissension seems little more than a boxing bout.

There is little available from which to draw a true picture of the medical service of the Confederacy. Such details as are interesting and authoritative can be presented here but they are all too meager.

The Surgeon General of the Confederacy was Samuel Preston Moore. It appears that he was Acting Surgeon General in August '61 but was not permanently appointed until some time early in '62. To those who thought the North had all the political squabbles and petty jealousies of the war, it may come as a surprise that an almost equal number of these miseries haunted an encumbered Moore. He would seem to have trod a thorny road with circumspection and tact, both of which he sorely needed. His available letters are models of stately suavity and refusal to take offense under great provocation. In one of them, however, he shows the quite human irritation of a man badgered beyond his usual endurance by political interference. In a letter to his Secretary of War, dated February 24, 1846, he snaps, "It appears to be the impression that hospitals can be organized in a day. Pray let me assure you that such is not the case!"

By that date hospitals and medical supplies were few, needs were overwhelming and the political pressure hot. Every sort of need must have been urgent in the extreme. A letter from General Sam Jones at Charleston in July '64 inquires about a suggestion of Moore's that "infusions of indigenous barks" might be used in place of the almost non-existent quinine. Jones asks authority to commandeer the 400 ounces of it belonging to the State. That amount being insufficient for a fifth of the malaria cases at the time, he suggests naively that both quinine and bark infusions might go much farther if exhibited in spiritus frumenti.

A more colorful figure, at least a better known one, was Lafayette Guild, Chief Surgeon to the Army of Northern Virginia from '62 to '65. An assistant Surgeon in the U. S. Army before the war, he resigned at its outbreak to serve the Confederacy. He had served with Lee, A. S. Johnston, and Josiah Gorgas and was a great friend of all of them. They all wanted him apparently but Lee succeeded in annexing him, than which nothing could have been more fortunate for his Army at the time. For a man of his scholarly attainments and great personal charm, he was a surprisingly able administrator, as his handling of Lee's medical problems proved time and again. His most astonishing feat of which we have record was his evacuation and care of the wounded after Gettysburg. It was a model of perfect organization against fearful odds and constant harassing attacks. Meade's timidity in following up his advantage in that long retreat to Virginia in no way minimizes Guild's masterly work in leaving only 150 moribund wounded behind. It was well nigh incredible. The pressure to which he was subjected toward the close was appalling. This is evidenced by his many movingly beautiful letters, still extant, in which he makes touching appeals for such simple things as potatoes and vinegar to avert the scurvy that was decimating the Army more than wounds.

Early in October of '62 he makes some pretty caustic complaints concerning the sharp practices of the Federal authorities in the exchange of wounded prisoners but adds with sad philosophy that all seems to be fair in war. From all available sources one gains the picture of a splendid man whose life and usefulness were shortened sadly by the rigors of his war service.

To return to the Federal service, Joseph K. Barnes succeeded Hammond. Though a member of the "old guard" and one of Stanton's favorites, he was sensible enough to follow Hammond's lead and to use this influence for the best interests of the De-

partment. One hears but little of him in these days but he accomplished an astonishing amount of constructive work. He established the Army Medical Museum, started the compilation of the monumental medical and surgical history of the war and, more far-reaching than these, began the collection of the Surgeon General's Library, securing for the latter the inestimable services of Lt. John S. Billings. Billings initiated the printed catalogue of the Library. The first issue was a small 24 page duodecimo pamphlet, an unprepossessing beginning for one of the greatest boons ever given medicine in general.

Barnes secured funds from Congress for the continuance and improvement of the Library which were ample in those days and, as Ashburn says, "got Congress into the good habit of making annual appropriations for it.' His record of achievement shows what can be done by a far seeing official who has influence and uses it wisely. The epithet of "teacher's pet" is not always approbrious.

Much that raised the status of military medicine during Barnes' tenure is chargeable rather to the epoch-making discoveries in this period of medical Renaissance. Claude Bernard, Brown-Sequard, Campbell, Duchenne, Charcot, Hunter, Bichat, Virchow, Baillis, Hodgkin, Bright and Addison led the advance. Laennec, Pasteur, Lister and Darwin followed closely.

For twenty years after Barnes' tenure came the sporadic Indian campaigns. During this time five Surgeons General came and went without great effect—Crane, Murray, Moore, Baxter and Sutherland. True, the Army and Navy General Hospital was opened in 1887 with 16 beds for officers and 64 for enlisted men. Not an impressive start for an institution that has paid great dividends of service in the past 55 years. These years were most notable for a series of unseemly medico-political scrambles for the Surgeon Generalcy.

An incident recounted by Ashburn typifies the attitude of most of the Army in those days. Borden, later Dean of Medicine at George Washington University, was interested in histology and requisitioned a microscope. Baxter disapproved it but had to grant it finally. To more or less put a quietus on such highbrow antics, he issued peremptory orders for change of station to Borden and some thirty officers whom he disliked. Calling at the Surgeon General's Office shortly after, when the General was out, Borden met kind, fatherly old Major Greenleaf. The Major undertook to persuade him to quit such monkeyshines and confine himself to straight practical medicine. Borden argued that using his leisure in that way was certainly no more detrimental than in drinking and gambling, to which old Greenleaf assented. "But it gets you nowhere," he persisted. "Look at Sternberg over there in New York, peeking through a microscope all the time! Can you tell me one bit of good Sternberg is to the Corps?" All alone by itself, with no moral tagged to it, it is a whole sermon to all older officers.

Sutherland, the last of the five, retired in 1893 and there was the usual melee among the ranking officers for his shoes. In settling this brawl, Cleveland added one more star to his crown by the appointment of Sternberg. Nothing luckier for Army Medicine could have happened just then. He brought with him training in and appreciation of the most modern methods. His first notable act was the founding of the Army Medical School. In this school practically all the regular Medical Officers have been trained for more than fifty years. In it have been developed important scientific work for the benefit of the Army and for medicine in general. Names that loom large in our history formed its first faculty—Alden, Forwood, Billings, Reed, Fletcher, Stiles and Keen.

It must not be thought that Sternberg's achievements in founding the school indicated any great affection for the Army on the part of Congress. Far from it! That body, with its usual lack of foresight where the Army was concerned, forthwith cut down the Medical Corps and abolished Contract Surgeons altogether. This, although war with Spain was so plain upon the horizon as to be visible to a blind imbecile. It was no fault of Sternberg that the Spanish-American War found the Department so woefully unprepared.

Typhoid was the order of the day. Diphtheria took more than its usual toll. Typhoid prophylaxis was long in the future and diphtheria antitoxin not yet in general use.

Sternberg, well trained as he was, made a curious mistake about typhoid. He ruled out everything except a contaminated ice supply as the cause of the severe army epidemics of that time but never apprehended the role of typhoid carriers in the messes, found later to be the chief etiologic factor. X-rays and diphtheria antitoxin were introduced in the late nineties and were used lavishly from the start. Fracture deformities and diphtheria mortality rates declined almost overnight. Sad to say, the incautious use of x-ray cost us many of our best officers from resulting malignancies, most notable among them Colonel Eugene Northington. Those privileged to know this brilliant, able, lovable officer have a treasure of memory that is priceless.

The Spanish-American War burst upon a terribly unprepared Army. It is a chapter in our history that does not lie with flattering unction to our souls but it was a wholesome lesson none the less. A vivid remembrance to the writer is his visit to the great camp hospital at Montauk Point in those days where it seemed as if the whole Army was down with typhoid. A painful memory is the apprehensive look on the faces of the well and the strained, pallid, more than anxious faces of the overworked medicos, many of whom were old friends. The state of the Army in Cuba was pitiable long before that time. It brought about the famous "Round Robin," instigated by Colonel Theodore Roosevelt whose rank and fortune in the Army could not be endangered by such a daring assault upon military customs and sacred tradition. By its sheer insolent disregard of these it astonished into action the complacent bigwigs in Washington and further increased the popularity of its dynamic author.

The typhoid and "embalmed beef" scandals of that day need little comment, though they were serious enough while they lasted. They were the direct result of the systematic throttling of the Department and, to that extent, preventable. It is always easy to place the entire blame upon Congress but we know from long and sad experience that it lay then, as it lies today, quite as much with the apathy of the sovereign people. This "many-headed monster thing" is slow to take advice, confident in its own ignorance, always almost too late and always ready to turn on its representatives for simply representing it.

The Philippine Insurrection added luster to but did not materially improve the departmental status. It did produce one nonmedical forward step in the adoption of the .45 caliber automatic pistol, the only arm capable of stopping a man when *juramentado*. It resulted far more importantly for medicine in the conquest of beriberi by Vedder, a benefit which may be thought well worth the insurrection.

The greatest beneficial result of the war was the establishment of the etiology of yellow fever by Reed and his associates, making possible the policing of Cuba and the Canal Zone by Gorgas.

The Army Nurse Corps had its actual, though unofficial, beginning during Sternberg's tenure. By inference he claimed credit for this but, in all justice, it was really due to the efforts of the Daughters of the American Revolution which took upon itself the job of recruiting nurses from civil life, later taken over by the Red Cross. Anita M. McGee was its first Superintendent.

Dental surgeons were first employed in 1901 on contract but it was not until ten years later that the Dental Corps was made officially an integral part of the Department and, even then, not to exceed 60 officers.

The Blues, as a field uniform, died after the Spanish-American War; was the full dress alone until 1917; was again the full dress in 1939 and is now again in eclipse. There is much to be said in favor of the Blues for dress. They give a certain swank and feeling of pride which is no bad asset to any army. Experience shows that the swankiest outfits have always been the best fighters. In both world wars the best Britain had were those natty Guard regiments formerly believed to be too dudish for anything but parade. Washington realized this when he wrote in one of his orders, "If the soldier cannot be induced to take care of his own uniform and take pride in his appearance, he will soon become a sloven and indifferent to everything."

Under Sternberg there was a further reorganization of the Department, giving more officers, a captaincy after three years of service, increase of all personnel by four annual increments, promotion examination

for all officers below the grade of Surgeon General and, last, the organization of the Medical Reserve Corps. How little could those entering the Reserve in 1908 have foreseen the gigantic proportions to which it would grow!

Ashford's labors in eradicating ankylostomiasis from Puerto Rico formed another landmark of this period. His methods have been copied in all countries similarly afflicted, with success commensurate with the effort expended.

It has been said that the luster of Sternberg's term was due to the great progress of medicine in general rather than to his efforts. That seems to be a jaundiced view. He was a man so well trained and so imbued with the spirit of modern science that he appreciated and took advantage of all its teachings. He must be called one of our truly great men.

William H. Forwood was the next incumbent. He was appointed *ad interim* and served only three months.

Robert M. O'Reilly was next in line. His was one of the brightest minds and one of the most delightful personalities ever to grace this office. He forthwith authorized the start of research in typhoid vaccination which was begun and carried to a successful conclusion by Russell and Vedder in the old school on Louisiana Avenue. Those who groan dismally at the multiplicity of inoculations today can be assured that they don't know the half of it. Those early experimenters heroically took their own medicine and many true cases of typhoid resulted but you hear little about them now. Vedder nearly died of typhoid so contracted. In those research days the vaccine often was insufficiently inactivated and as often was made from some highly virulent strain. Paratyphoid A and B inoculations were given separately, so that every man took nine punctures to a course. This was continued well into World War I, a slow, painful, needless method.

General O'Reilly was a Catholic, albeit a not especially hard-working one. In his office and close to him in his official duties were Kean, Ireland, McCaw and Darnall. Though not one of these latter was of the Catholic faith, the names sounded suspicious to the intolerant of that day and it is amusing now to remember the many caustic references to "O'Reilly's Catholic Heirarchy." That they were all men of great ability made no difference. It was years before some of the bigoted ceased to believe that the Pope was dictating the appointments to the office.

This group of young, able ambitious officers worked with their chief and together smoothly and to great effect. They established friendly relations with Congress and the civilian profession. They even popularized the Corps with the public in general. They supported the General Staff and played the game with it so squarely that many advantages accrued to the medical service. Appropriation was secured at this time for the construction of Walter Reed General Hospital. Altogether, O'Reilly's term was of exceptional benefit to the Department, due chiefly to his wisdom in propitiating Congress, to his selection of subordinates and not less to his sincere, genial, lovable personality.

His tact in dealing with the public and his care for the men of his Department were shown by his handling of an uncomfortable situation single handed. Some enlisted men of the Department were refused admission to a place of public entertainment and, though in uniform, were summarily ejected for no good reason. The General was incensed at such scurvy treatment and saw the need of some sort of reprisal. By skilful innuendo and by partially veiled threats of prosecution, coupled with wide newspaper publicity, he so put the fear of God into the small-souled proprietors that they issued a public apology and gave the soldiers a pretty handsome money compensation. The affair created a great deal of caustic comment and reacted very favorably toward the Army.

George H. Torney succeeded O'Reilly. He was also of the Catholic faith and his appointment clinched the notion in the minds of the more venomous of the bigoted that, in some nefarious way, Rome was running the Medical Department. Torney's reputation had been made by his masterly handling of the medical aid at the time of the San Francisco earthquake. That reputation was shown to be just by his able administration of the office. Walter Reed Hospital was built and opened, typhoid prophylaxis was made obligatory throughout the Army, supplies were improved and increased, the

Medical School enlarged and Military Sanitation made part of the training course in all service schools. While he was no great innovator, he improved the interlude of peace to the immense benefit of the Department.

The sixteenth Surgeon General was William Crawford Gorgas. It is hard for the writer to refer impartially and impersonally to Gorgas as is true for anyone who ever knew him. To every alumnus of the University of Alabama his mother and sisters were the patron saints of the school. They were justly proud of their famous son and brother and so were we because they were. We had only a nebulous notion of how great a work he did but we learned later. Whoever came in contact with him was charmed by his courtly kindliness and impressed by his innate modesty. He could be stern at need, it was said, but all who had ever been admonished by him would swear that it clearly hurt him to be so. The statement, so often heard, that anyone who had ever stepped upon the sacred soil of Panama could get anything he wanted from the General, was only an exaggerated reference to his faithfulness to all who had faithfully served him. Of not too robust health he had applied for retirement in January 1917. He felt that in the dark days ahead some other younger and stronger hand should be at the helm. Our rapid involvement in the war caught us unaware, as usual, and every voice in the country spoke of him as the one man to head the Department. Of course he did it.

We were all but too late, as is our habit. Still, looking back on it now, it seems that the Medical Department came the nearest to being the shining exception. We were better organized and our Reserve Corps was further advanced than that of any other branch. No doubt the bitter lesson of the Spanish-American War had something to do with this. All during the winter of '17 classes of instruction for the Reserves had been held and enthusiasm was high. As a result, they entered active service generally better prepared than the other branches.

For all of this, Washington by June '17 was still an outwardly somnolent city. The frenzy of preparation was hidden in the various offices where space was as yet wholly inadequate. It was a shock to find Gorgas's office with only one stenographer, only one wall telephone across the room from the desk and correspondence piled everywhere. This was soon remedied. It had to be. But at that time preparation had not been extended to office accommodations. It was far behind the already smoothly running machine we had on "the day of infamy." However, Gorgas was outwardly serene and untroubled despite the crushing load he bore.

Details of the expansion of the Department obviously cannot be given for lack of space. Much had to be done in little time. But, comparing the early days of the two World Wars, effort and accomplishment were about equal, everything considered.

For the first time in our history we made full use of our huge civilian resources for professional work and advice. Names that are haloed in our medical annals appeared on the official rolls. Welch, Vaughan and the Mayos were towers of strength in Washington. Finney, Crile, Cushing, Young, Longcope, Thayer, Salmon, Boggs and many others headed consulting services abroad. The broad utilization of the best brains of the country was of incalculable help. True, there were bickering and misunderstanding from time to time between them and the old regulars. The latter did not relish the tendency of the newcomers to disregard the "A.R.—dashes." The former found it hard to keep in mind that there were *some* rules which could not be disregarded. Most of the clashes were good humored but occasionally sparks flew and lit troublesome fires.

International relationships were often strained between both governments and individuals. Such troubles with Great Britain were nullified with neatness and dispatch by the influence and consummate tact of Sir William Osler who probably wielded more power with the War Office than could any other man in Great Britain. He leveled more rough spots for the Canadians and ourselves than ever showed in the official records. To a lesser degree Carrel functioned in the same way with the "old Tiger," Clemenceau, but the latter was a far tougher individual to influence than any of the British officials.

On this side, Gorgas had two great assets: a suave, patient nature and his unlimited influence. His wisdom in compromise pre-

vented many open breaches with the General Staff and many a decision was made in favor of the Department which might easily have been lost by another man. Even now the record of those days in Washington is not too clear. To those at home it is shrouded in too close continguity; to those overseas, by distance. Certain it is that paramount needs were foreseen and taken care of by Gorgas often far in advance of official financial authorization. His influence on overseas affairs was made easy and sure by the fact that Ireland was Chief Surgeon to the A. E. F. and the two worked in perfect cooperation. We could not have had two more competent and effective officers when and where they were most needed.

Excellent performance was given by Stark and Reynolds as Army Surgeons, by Siler and Foster at the Central Laboratory at Dijon, by W. J. L. Lyster, Patterson, and De Laney in liaison with Britain, by Love, Callendar and Tuttle in the Surgeon General's Office. Nor can we pass over the immense help of General Pershing, whose ear was always sympathetic to departmental needs.

Gas warfare, happily absent in World War II, was a major menace in 1917. With each new compound sent over by Germany a new set of uncertainties developed as to its nature, treatment of lesions produced and protection against it. No one present at the time will ever forget the helplessness of those periods nor can anyone who was severely gassed ever forget the experience. Our first attempt at combating it and at organizing an offensive chemical warfare service was handled by the Engineers under the leadership of Colonel Amos A. Fries, later chief of that service. The first medical officer to interest himself in that side of the question was Colonel H. L. Gilchrist who succeeded General Fries as Chief of Chemical Warfare Service.

The first request for specific military aid made of us in April '17 was from Great Britain for medical and engineering help. In response, about 2,000 medical officers were loaned and were used almost to a man on the British front. They received the meager field allowance of the British Expeditionary Force but for months there was not machinery set up by the American Expeditionary Force for paying them. When this was finally effected, the relief of the writer can be imagined when he received pay for five months in arrears after existing precariously on that field allowance plus some increment derived from the over-confidence of the average British officer in his poker technique. This group was the so-called "Lost Legion." It had a grueling and honorable service. Of this 2,000, 34 were recommended for various British decorations but were not allowed to receive them; why, Congress only knew. De Laney has said that they had more casualties than all the other medical officers in the A. E. F. combined; that, comprising only ten percent of American medical officers, they had front line service five times as great as the other ninety percent; that they were under fire long months before the first A. E. F. contingent went into the line. They got no leaves, either for Paris or London except by way of the hospital route. W. T. Fitzsimmons, the first U. S. medical officer killed, was one of the first of this Lost Legion to go over and those of us who were in that small company cannot forget his solemn premonition of the fate that awaited him. Even that could not crush the irrepressible Irish in him, lessen his charm and wit or interfere with the full enjoyment of the little time left to him. One cannot help wondering if his premonition extended to a vision of the magnificent hospital that bears his name today.

Though not strictly germane, mention should be made of the endeavors of a number of American-born women who had married Englishmen and lived most of their lives in Britain. Working through the Liaison Office with the American Ambassador, they founded the American Women's Hospital for enlisted men at Paignton and another for officers at Lancaster Gate in London. They secured the unusual energy, devoted service and organizing ability of a young American doctor who had been working with the Royal Army Medical Corps since 1914, Dunlap Penhallow. The equipment, activation and upbuilding of these splendid hospitals was entirely due to him and he continued with them until recalled for commission. He was again in uniform as Colonel, A. U. S., during the first months of the late war. These ladies, headed by Lady Harcourt, a niece of J. P. Morgan, Sr., and by Lady Randolph Churchill, mother of the great Winston, financed these undertakings

and managed the business side of both with admirable skill. Those of us who were lucky enough to come under their motherly care will always cherish their memory.

Gorgas retired in October 1918 and immediately went into the fight against yellow fever in Africa. Not for him was any rest at ease on his laurels. Two years later in Europe en route to Africa he died of cerebral hemorrhage. On his death bed King George V made him Knight Commander of St. Michael and St. George, a most fitting honor, for "He was a verray parfit gentil Knyght."

Among overseas officers there was but one choice for a successor, Merritt W. Ireland. Finney has told circumstantially in his memoirs about his commission by General Pershing to return immediately home and deliver the message, "We want Ireland and *there is no second choice.*" Finney's mission to Wilson and Baker was successful. There was no slipup and Ireland became our 17th Surgeon General.

For the next twelve years he remained in office. In that time he demonstrated the deep wisdom of finding a man with that much service left to him, who has had ample administrative experience, who has the needed endowments, giving him the job and letting him alone to do it. His well considered, well rounded program gave the Army better medical service than it ever had before.

Ireland straightway incurred the derision of all other army branches by securing the necessary legislation to place peacetime promotions on the sure basis of length of service. Whatever may be said against it, it does assure his future for any officer who hits the ball and plays the game squarely. Promotional examinations, both mental and physical, insure that the great majority do make the requisite batting average. It is pretty certain that medical officers undeservedly promoted by this method can be counted on the fingers of one hand. That is a percentage of fairness equal by few other lines of service. The Line has long since seen the soundness of Ireland's judgment, has ceased sneering at it and has clamored for its benefits.

His sense of justice compelled him to place the Dental and Veterinary Corps on the same promotional footing as the Medical Corps. The securing of relative rank for Army Nurses was fair and wise. Nothing else could have simplified the administration of that branch or assured its correct relation to both officers and men.

His initiation of the Medical Administrative Corps incurred great criticism at first, especially from the older officers. Admittedly there were many of the old non-coms who were totally unfitted to hold the rank they so easily and suddenly attained. Attrition, more careful selections and courses of instruction have removed this drawback. Many officers who were most vocal in their doubts at first found themselves at the beginning of World War II in command of large hospitals and soon realized that their M. A. C. officers were absolutely indispensable. Medical officers were thus spared to their own professional duties and were prevented from frittering away their time in work for which they were in no way fitted. Whatever changes may be made in the duties and composition of this Corps, the basic idea is a sound one.

In his three tours of duty in the office, Ireland saw to it that the inevitable reaction of peace against an adequate Regular Army did not unduly wreck the department. If the supreme folly of cutting down the army to absolute weakness affected the medical department less than any other, it was more to his credit than to that of all others put together. Retirement did not abate his interest in or his generous assistance to the Department. His services cannot be overpraised.

Robert U. Patterson, previously Ireland's executive officer, succeeded him. It was his misfortune that the worst of the depression occurred during his tenure. He brought a finished technique and wide experience to his task and managed skilfully to cling to the gains already made and weathered the financial stringency far better than could have been expected.

Charles R. Reynolds was next in line. One cannot think of Reynolds apart from the Medical Field Service School at Carlisle which he commanded and developed with so much success. Founded by Ireland as a new and separate entity after World War I, it soon demonstrated its value. It is doubtful if any other Service School has consistently contributed more real benefit

to its Corps. Under Reynolds and Stayer it was well worth attending, if only for the delight of seeing how well a school could be run. From '42 to '46, with its capacity taxed to the extreme limit, it still held its prestige.

In the last year of Reynolds' tenure the 1939 session of the International Congress of Military Medicine was held at Washington. This useful and important organization was to have had its next regular session in Switzerland in 1941 but by that time Europe was so embroiled that no attempt has been made to hold it since. Every nation was represented in '39 except Poland and Japan: Poland because of the too plain intentions of Germany and Japan who was too busy civilizing China. Germany's effort to appear in its best light was so labored as to be ludicrous. Its delegation was hand-picked and included the Surgeon Generals of the Army, Navy and Luftwaffe, besides some of its ablest younger men. No delegation from that arrogant land could have been so obviously eager to please or so full of specious charm unless peremptorily ordered to do so by der Fuhrer. They were as transparent as glass. Evidently they were holding themselves on a tight rein but not quite tight enough to prevent the arrogance from showing through now and then. There was so much coldness and quite evident dislike of these smooth emissaries that it became necessary to send quiet, verbal cautions to all of our participants lest open unpleasantness should mar the proceedings.

Every delegation except Britain's seemed genuinely astonished at the extent and luxury of our medical installations, finding it hard to believe that such equipment was simply for the care of mere soldiers, expendable items in their view. Our welter of later preparations had not yet begun and that was patently a relief to the Nazis.

The handling of this Congress was a credit to General Reynolds. He surprised all of us by his ability to "put on the dog" and to make the arrangements and ceremonies on a scale commensurate with the importance of the occasion. His tact, too, saved many a situation from disaster. His dry wit and his well-known habit of pointing his words with a bit of pungent humor often convulsed the meeting and frustrated incipient angry debates among unfriendly delegates. On introducing aging, obese, able Savarin at a rather tense moment of the final banquet, he said, "I present to you Monsieur le Chirurgien Generale de France, a nation, I might add, which does not have the prevailing belief of these days that an official must be retired as soon as he attains the age of puberty." Savarin's whole huge bulk shook with his enjoyment of the sarcasm.

This Congress fittingly ended Reynolds' exceptionally wise and farseeing regime.

The 19th Surgeon General was James C. Magee. The bulk of preparation for and the first stages of World War II made memorable his service to that office. He shouldered a staggering burden. A less well equipped man would have broken under it. As it was, his long executive experience, geniality, knack of securing cooperation from subordinates and rugged physical stamina stood him in good stead and made his office in those mad days the smoothest running one it was the writer's privilege to see in Washington. By their participation in the late war his tenure and that of his successor are too closely bound together for easy separation.

The 20th Surgeon General, Norman T. Kirk, saw the war through to its close. Everyone now knows more or less what his term in that office has meant—that is, as well as anyone outside it can realize. When the vastness of the difference between the Surgeon General's Office today and in 1818 is contemplated one can have some measure of the growth of our service in 128 years. Kirk's burdens and responsibilities are still crushing and it must be said that he has borne them well and with marked success. Both Magee's and Kirk's tours have been too recent for just appraisal and of too great magnitude for comprehension. Certainly both can look back upon their accomplishments with pride.

Apart from the prosecution of the war there is one stupendous project which has been practically accomplished. It has been directed wholly by Major General George C. Dunham whose volume "Military Preventive Medicine" is standard the world over. This has been little short of the complete sanitation of South and Central America under the patronage and with the financial backing of Nelson Rockefeller. The project was tied in with the construc-

tion of the inter-hemispheric highway for reasons of popular interest but, naturally, the road could never be completed successfully without the help of an enormous sanitary program. General Dunham was the one man in the service able to put it through. A man was needed who had a superhuman capacity for work, a splendid personality, international fame and the ability to secure the cooperation of the governments of our Latin-American neighbors. All these he had in abundance. Before he was retired for physical disability incident to this great work he could look back on an accomplishment no other man could have brought about.

The writer is most conscious of the defects of this short sketch. So much of interest could not be told in so short a space. It has usually seemed on rereading that the most interesting details have been passed over. If anyone desires to read a fuller account which takes the history of the Department up to General Ireland's regime, let him consult that well written and circumstantial "History of the Medical Department of the United States Army" by Ashburn. In it he will find a wealth of documented information.

In conclusion, it is hoped that this sketch may be helpful in clarifying the slow but sure progress that has been made since Revolutionary times by Army Medicine. It is hoped also that it may give some measure of comprehension as to the hard, unappreciated, generally unrewarded efforts of the Corps. Those who have served and are still serving in the A. U. S. have made harsh criticisms of the old officers of the U. S. A. Doubtless many of these have been valid. Still, thought should be given to the long years of struggle and of faithfulness in the day of small things, of the tiresome road of dull routine and discouragement along which these men have plodded with the one paramount aim of bringing the Department to efficiency as best it could. "Other men have labored and ye have entered into their labors."

SOME COMMON UROLOGIC COMPLICATIONS FOLLOWING ABDOMINAL SURGERY

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Before attempting to present a paper on this subject it might be well to review the anatomy of the urinary tract in order to understand better the physiologic aspects of the pathology so often encountered in complications of the urinary tract following abdominal surgery.

As is well known, the urinary tract is comprised of the kidneys, ureters and urinary bladder; and the physiologic functions in health are most important, and in disease, whether primary or secondary to the urinary tract, are doubly important. A normally functioning urinary tract is desired at all times, and especially is this true in disease. Life is sustained in proportion to the normal functioning of the urinary tract, either in health or disease. If there is impaired function, especially of the kidneys, other body functions are impaired in a proportionate degree.

Read before the Association in annual session, Birmingham, April 16, 1946.

The urologic complications following abdominal surgery should be classified under two headings: (1) immediate and (2) delayed. Under the heading of immediate complications, the most common are anuria, acute retention, ureteral block, either from edema of the ureteral tract or calculi; and under delayed complications, the most common are cystitis, either septic or traumatic, nephritis, nephrosis, nephroptosis, ureteritis, pyelitis, prostatitis, urethritis, epididymitis and orchitis. The question arises as to treatment, either prophylatic or therapeutic, of these complications. For the sake of brevity, we shall discuss the complications under the respective headings. The immediate complications may be avoided to a certain degree by a careful history, preoperative examination and treatment, if indicated; and a careful observation of the patient's condition immediately prior to operation and immediately following operation, with especial emphasis placed upon the patient's

laboratory findings immediately before and after operation if there is a history of disease of the urinary tract. There are far too many appendectomies performed on patients who have either ureteritis or small calculi, and, to digress into the gynecologist's field, right cystic ovaries and right salpingitis. If any urinary disease is suspected, either from the history or found upon examination of the patient preoperatively, it should always be treated and, if possible, eradicated before any abdominal operation is attempted. This can be done on more than fifty percent of the cases because at least that number of abdominal operations are elective, and at least another twenty five percent would not come to surgery if a careful history were taken and physical examination made before the operation. There are far too many abdominal operations performed under the pretense of an acute abdomen, and the medical profession is the only group that can correct this practice, which leads us to the classification of surgeons which I rather like: (1) the operating surgeon and (2) the surgeon who operates. There is a great deal of difference between the two, and the operating surgeon is by far in the majority at present.

But let us return to our subject of treatment of these complications in case they do arise. Anuria should be looked for at all times and immediately following operation. If it should occur, immediate steps should be taken to relieve it, if possible. In most cases this is best done by giving intravenous glucose in at least 50 per cent concentration and at least 50 to 100 cc. every 6 to 12 hours. There should also be given at least one to three units of plasma each twenty-four hours, with probably one transfusion of whole citrated blood, especially if the patient is anemic, or in shock. It may be necessary to continue vigorous treatment of the patient for this complication for several days unless there is immediate response. In my opinion it is one of the most disconcerting urologic complications following abdominal surgery. Acute urinary retention is a rather bothersome complication and naturally one of the most common, but fortunately can be relieved by the use of the catheter. However, I feel that most patients have a smoother convalescense if they can avoid even one catheterization. Most patients develop a certain degree of traumatic cystitis from one or more catheterizations, and may even develop an acute septic cystitis.

Ureteral block is another rather common complication which is usually encountered early following abdominal surgery. This condition may arise from trauma, ligation or calculus. As stated above, the latter may be recognized from the history or by careful preoperative examination, including x-rays and laboratory examination of the urine. Trauma can be avoided by careful technique during the operation. In this connection there might be mentioned the possibility of postural block due to nephroptosis which may be seen in case it is necessary to place the patient in the Trendelenburg position for postoperative drainage. This condition is more often noted after the patient is allowed to sit up in a chair or even after he is allowed to be up and is walking around.

Under delayed complications the most common, in my opinion, is cystitis, usually acute or subacute. As mentioned before, this condition may be either septic or traumatic, sometimes both. Therefore it is very important that the patient who has to be catheterized should have this done by not only an attendant or nurse who is capable but one who is gentle in performing the procedure. Many of these cases are simply recurrent from previous attacks and are precipitated by dehydration following surgery. This can be avoided in many cases by the intravenous infusions of fluids every 8 to 12 hours for the first 72 hours postoperatively. The frequency and amounts will vary with the patient, but normally there should be a minimum of from 2000 to 3000 cc. per 24 hours. These amounts usually suffice until the patient is able to retain at least 72 to 96 ounces per 24 hours orally. If there is sepsis one should administer some form of urinary antiseptic, intravenously, intramuscularly or orally. Recently penicillin has been found to be ideal for most of the cases which I have encountered.

Next to cystitis, I have found that recurrent pyelitis is a very common complication, and treatment should be instituted just as soon as clinical symptoms appear, which may be from 24 to 72 hours postoperatively.

The treatment is the same as for cystitis unless there are obstructive symptoms in which case it may become necessary to cystoscope and catheterize the ureters to institute drainage of the kidney pelvis. Even a pelvic lavage will oftentime hasten recovery, especially if sulfa drugs have been previously administered and crystalluria is present. The lavage should consist of either boric acid or sodium bicarbonate solution.

Nephritis is not so commonly seen except as a primary entity, and then most often in the juvenile or senile ages; it is a very harassing complication, however, and will usually terminate in anuria unless recognized early and appropriate measures instituted for its correction. Treatment, as outlined above, usually suffices even though it may be a delayed complication, in which case saline laxatives can be administered to advantage.

Nephrosis may not be recognized before operation unless cystoscopic examination is made and pyelograms, either intravenous or retrograde, are done. This condition usually improves if the patient is provided with proper diet and rest and therefore does not produce any great degree of delay in the patient's convalescence. It is important that the progress of this condition be checked at frequent intervals after the patient has recovered from the operation.

Nephroptosis is one of the common conditions which produces mistaken symptoms of an acute abdomen, and therefore can be recognized if a proper history is obtained and a physical done. This is most commonly found in long waisted and skinny individuals. Usually, after any pathologic condition is removed and the patient gains in weight, the so-called floating kidney will become more normal due to the fatty pads deposited around it. The treatment is one of instituting proper drainage of the kidney, usually by elevation of the feet and pelvis, allowing the kidney to resume its normal position. If infection is present, the institution of increased fluids and urinary antiseptics is indicated. Naturally bedrest is conducive to rapid convalescence of the patient suffering from this complication.

Urethritis is most commonly associated with either pyelitis or cystitis or both. Usually the treatment instituted for either will suffice for the correction of this complication. I doubt if ureteral catheterization should ever be attempted for the correction of this condition unless there are definite obstructive signs and symptoms, and only then if the patient's hyperpyrexia cannot be controlled otherwise.

Prostatitis is an infrequent postoperative complication but may be seen following catheterization, especially if the patient has had previous attacks or has an active urethritis at the time of instrumentation or catheterization. This condition is best controlled by sedatives, either in the form of suppositories or hypodermic injections, and hot applications to the perineum as long as the patient is confined to bed and hot Sitz baths after convalescence.

Urethritis is seen quite frequently and very rarely is it non-septic; as in prostatitis there may be an acute exacerbation following catheterization and this condition should always be anticipated if there is a history of previous infection, regardless of the length of time elapsed since any clinical signs or symptoms. This complication can best be controlled by discontinuing catheterization or any other form of local treatment and administering penicillin in sufficient dosage (100,000-300,000 units daily) until all signs and symptoms have been cleared. Cleanliness of the parts and copious amounts of fluids are conducive to rapid recovery from this complication.

Epididymitis and orchitis are usually preceded by acute prostatitis or urethritis, or both. It is not so frequently seen, but usually is very severe when it is present; treatment should be instituted at once in the form of sedatives if pain is severe, ice caps to the scrotum, suspensory and penicillin or some form of non-specific protein, such as Omnadin, which I have used very successfully. It is very rarely necessary to resort to surgical drainage in the management of these complications.

CONCLUSIONS

From a general surgeon's viewpoint, I am convinced that if more urologic conditions were recognized in our patients before abdominal operations, we would have less postoperative embarrassment and worry; there would be far less need for repeated surgery, and more patients would have fewer pelvic organs removed in their effort to obtain relief from abdominal pains.

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DIABETIC NEUROPATHY

"Diabetic neuropathy is a disseminated neurologic disturbance that may involve any part of the nervous system.

"The mere control of glycosuria, with or without insulin, does not prevent the development of diabetic neuropathy. The chronic and severer manifestations of diabetic neuropathy demand intensive and prolonged therapy.

"The treatment of choice consists of large doses of thiamine chloride and vitamin B complex, parenterally if necessary in addition to control of the diabetes."

The above are the conclusions of Rudy[1] in a study of this subject that was published a few months after his death last year.

We are told that "neuropathy in diabetic patients, however, is not the clear-cut syndrome that has been produced in animals and man by diets deficient in vitamins. In my experience it is frequently diffuse and disseminated and often presents a bizarre picture. The predominant manifestations may be of cerebral origin or be related to the spinal cord, or may be the result of changes in the peripheral nerves. Even syndromes, such as combined system disease or tabes, have been noted. Diabetic neuropathy also may simulate tumors or degenerative diseases of the nervous system or malignancy of the gastrointestinal tract.

"In occasional patients the objective manifestations of the neuropathy are extremely marked when the subjective symptoms are minimal. In most patients, however, the subjective manifestations of diabetic neuropathy develop first and may be present for a long time before definite neurologic signs can be elicited. In these the diagnosis of hysteria or psychoneurosis has frequently been considered before the true situation has been recognized.

"Although diabetic neuropathy may involve any part of the nervous system there is nevertheless a definite predilection for the peripheral nerves."

Treusch,[2] of the Mayo Clinic, informs us "that the topic of diabetic neuritis is not a simple one is familiar to both internists and neurolgists. The very term 'diabetic neuritis' is in many cases a misnomer. In many of the cases in which the condition is called 'diabetic neuritis' the main etiologic factor is not diabetes per se; in other cases the condition is not truly neuritis."

Treusch then goes on to devise a classification of the various forms of diabetic neuritis, which cannot be reproduced here because of lack of space.

Woltman,[3] also of Rochester, in his discussion of Treusch's paper says, "Diabetic neuritis designates a condition that has been written about for decades. The term 'diabetic neuritis' is familiar, perhaps too familiar. It might be more appropriate to speak of the diabetic neuritides, since the peripheral nerves may be affected in different ways and by different causes. The patient may have much pain but no objective signs; he may have no pain, but a wealth of signs. Some patients may have no paralysis but may have complete peripheral sensory loss to which may be added dissociated loss of sensation at a higher level. In others paralysis may be grave but sensory loss insignificant. The diabetes may be mild, but

1. Rudy, Abraham: Diabetic Neuropathy, New England J. Med. 223: 684 (Dec. 6) 1945.

2. Treusch, J. V.: Diabetic Neuritis: A Tentative Working Classification, Proc. Staff Meet., Mayo Clin. 20: 393 (Oct. 31) 1945.

3. Woltman, H. W.: Discussion of the above article by Treusch.

the neurologic changes severe. The larger vessels of the feet may be opened or closed. The protein of the spinal fluid may be increased or remain normal. Unlike many other kinds of polyneuritis, diabetic neuritis has a striking and often exclusive predilection for the lower extremities, and, almost unheard of in other kinds of polyneuritis, is complicated often by perforating ulcers. The course may be relatively acute and severely disabling but may end in complete restitution or it may be insidious and steadily progressive. So numerous are the vagaries of diabetic neuritis that their recital leads to discouraging confusion. To be able to write simply 'diabetic neuritis' provides a convenient escape."

From all of the above it is easily evident that diabetic neuritis, diabetic neuritides or diabetic neuropathy is both prevalent and widespread and may be difficult of recognition and treatment. The average or isolated practitioner need not concern himself too excessively over the finer points of classification, points upon which the neurologists and experts in diabetes are not as yet in complete agreement. But it is indeed incumbent upon every physician to bear diabetes in mind constantly and to give heed to the excellent and practical admonitions given by Rudy, Treusch and Woltman. The neurologic complications of diabetes, especially in their early or milder stages, are probably the most frequently overlooked and most persistently neglected of all the diabetic disasters. By being on the alert for the neurologic aspects of diabetes the practitioner can, more often than not, do much toward the betterment of his ever increasing tribe of diabetics.

THE PEDIATRIC QUESTIONNAIRE

Whether the practicing physician is aware of it or not, the demand for better national health is growing and, as with all impersonal problems not easily solved, the public is inclined to ask the Government to supply the answer. As doctors, there are few of us who think that "State Medicine" offers the best solution, but in the eyes of the public we are a prejudiced group, fighting for a vested interest. We must have facts not fancies to support our beliefs.

The American Academy of Pediatrics, which is largely composed of practicing physicians, has undertaken a study to determine health facilities for children in every state in the union. This information is to be obtained from all practicing doctors dentists, hospitals and clinics who render health care to children. When cataloged, there will be available to all interested the actual facilities existing. The rectification of whatever inadequacies there may be and wherever they may be can be better effected with informed intelligence than by utopian fancies such as have already been proposed in the Congress.

You will receive a questionnaire within the next few weeks and we ask you to consider that you are doing yourself, your profession and your state a good service in supplying the needed information. By doing it promptly you will render a personal service to the pediatricians who are conducting the study.

COLONEL TEASLEY CITED

The Legion of Merit has been awarded Lieut. Col. Gerald H. Teasley, now a fellow in urology at the Mayo Foundation, Rochester, Minn., for "performance of outstanding service." Formerly director of the military personnel division, Office of the Surgeon General, Washington, D. C., Dr. Teasley established a classification system for the best distribution of medical officers. He also prepared plans for demobilization to civilian occupations. The citation stated further that Dr. Teasley's services "have been characterized by a high degree of proficiency surpassing that which might reasonably be expected of an officer in his position." Dr. Teasley graduated from Emory University School of Medicine in 1930 and entered the service Jan. 9, 1941 from Athens, Alabama.

COMMITTEE CONTRIBUTIONS

PHYSICIAN-DRUGGIST RELATIONSHIPS
Resolutions of the Alabama Pharmaceutical Association

The Alabama Pharmaceutical Association held its annual convention in Birmingham May 21st and 22nd. Among the resolutions adopted, the following are of interest to physicians:

"*Resolved,* That the Alabama Pharmaceutical Association oppose any attempt through legislation or regulation to regiment pharmaceutical or medical services, or to place their practice under political or autocratic control, and pledge its cooperation to any adequate plan to extend medical care that utilizes existing medical facilities and which guarantees the right of free choice of pharmacist, dentist, nurse, physician and hospital."

"*Resolved,* That the Alabama Pharmaceutical Association continue to cooperate fully with the Allied Health Council of Alabama and the individual allied professions and the State Health Department in the promotion of the general health."

"*Resolved,* That, whereas our present barbiturate law is inadequate to regulate properly the sale of these dangerous preparations, the Alabama Pharmaceutical Association call on the joint committee of the American Pharmaceutical Association and the National Association of Retail Druggists to formulate a model law covering the purchase, possession and dispensing of barbiturates at the national level."

"*Resolved,* That the secretary be instructed to draft and mail a letter to all of the physicians in Alabama calling their attention to violations of the narcotic law and asking them to cooperate with pharmacists in the future by leaving a written prescription with the patient whenever prescribing a narcotic drug."

MEDICAL COLLEGE OF ALABAMA NEWS

This is to announce the Marjorie Dee and Gilbert E. Fisher Fellowship in Otolaryngology and Bronchoscopy. The prevention of deafness in children is the problem to be carried out this year. Recipient for the year beginning July 1, 1946 is Dr. Frank Sims Moody.

* * *

Dr. Roy R. Kracke, Dean of the Medical College of Alabama, and Mr. Ernest Lowe, University of Alabama representative to the Medical College, were honored at a dinner June 26th for their efforts in obtaining the Jefferson Hospital for the Medical College of Alabama teaching hospital. Previously the Jefferson Hospital had been owned by Jefferson County. The State of Alabama made money available with which to relieve the hospital debt thus making possible the transfer of ownership title to the University of Alabama of which the Medical College of Alabama is a division.

* * *

The Gorgas Medical Society of the Medical College of Alabama has sponsored two guest speakers. Dr. Rueben Kahn, Professor of Bacteriology and Serology in charge of clinical laboratories, University of Michigan School of Medicine, gave two talks May 16th. "Interpretation of the Kahn Test for Syphilis" and "Clinical Phases of Syphilis" were the subjects of his talks. Dr. Paul B. Beeson, Professor of Medicine at Emory University School of Medicine, spoke on "Bacteremia and Fever" on February 27th.

* * *

Dr. Alice McNeal has been appointed Associate Professor of Surgery (Anesthesia) at the Medical College of Alabama and Head of the Department of Anesthesia for the Medical College of Alabama teaching hospital, the Jefferson-Hillman. Miss Loyce Douglas, R. N., has been appointed operating room supervisor at the Jefferson-Hillman Hospital.

Dr. McNeal came to Birmingham from the Presbyterian Hospital, Chicago, where she had been since 1927 except during an interval when she served a residency in anesthesia with Dr. Ralph Tovell, Hartford, Connecticut. Born in Hinsdale, Illinois, Dr. McNeal received her B. S. degree from the University of Chicago and M. D. from Rush Medical College.

Miss Douglas attended South Georgia Baptist School of Nursing, and did postgraduate work in operating room technique at New York Hospital and Columbia University Hospital. She has been operating supervisor at Emory University Hospital and studied nursing education at the University of Georgia.

In 1944 Miss Douglas began service with the 43rd General Hospital (Emory Unit) of the U. S. Army in Africa, Italy and France.

* * *

Dr. E. B. Carmichael, Professor and Head of the Department of Bio-Chemistry at the Medical College of Alabama, was elected Vice Chairman of the Southern Section of the Society of Experimental Biology and Medicine at a recent meeting of this society in New Orleans.

* * *

Recent additions have been made as follows to the Library of the College:

Adriani, J.: *The Chemistry of Anesthesia,* Thomas, 1946.

American Public Health Association: *Diagnostic Procedures and Reagents,* The Association, 2nd edition, 1945.

Amor, A. J.: *X-Ray Atlas of Silicosis.* Williams & Wilkins, 2nd edition, 1943.

Babkin, B. P.: *Secretory Mechanism of the Digestive Glands,* Hoeber, 1944.

Barach, A. L.: *Principles and Practices of Inhalational Therapy,* Lippincott, 1944.

Beaumont, W.: *William Beaumont's Formative Years; Two Early Notebooks,* 1811-1821, Schuman, 1946.

Beck, S. J.: *Rorschach's Test: I. Basic Processes; II. A Variety of Personality Pictures,* Grune and Stratton, 1944, 1945.

Bennett, Waine and Bauer: *Changes in the Knee Joint at Various Ages,* Commonwealth Fund, 1942.

Best and Taylor: *The Physiological Basis of Medical Practice,* Williams & Wilkins, 4th edition, 1945.

Blair, Moore and Byers: *Cancer of the Face and Mouth,* Mosby, 1941.

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Early Diagnosis of Neurosurgical Lesions—The usual cardinal symptoms of intracranial lesions are headache, nausea and vomiting, and visual loss, which symptoms are produced by increased intracranial pressure due either to tumor of the brain or to inflammatory lesions such as arachnoiditis and abscesses.

Headache is the most common of these symptoms, although many brain tumors grow to a considerable size without producing it. More than half of the headaches resulting from increased intracranial pressure are not localized to a definite region or even to one side of the head, but are diffuse. Generalized headaches caused by intracranial pressure are described as deep and expanding; seldom are they continuous; they occur intermittently, usually in the morning or every two or three days, and may be relieved by vomiting. Headaches of psychogenic origin are usually more superficial, more radiating, more constant and unremitting than those caused by intracranial pressure. They may be stabbing, boring and confined to the top of the head or occipital region, producing a sense of tightness of the occipital muscles. Migraine headaches may be general or confined to a half of the head; they come in attacks lasting from half a day to four days and are associated with nausea, vomiting and sometimes visual disturbances such as hemianopsia or scotomata.

Vomiting associated with brain tumor usually occurs at the peak of the headache and is followed by relief of the headache; it may or may not be associated with nausea, but it is not related to eating of food. Explosive or projectile vomiting, while not essential, is suggestive of intracranial pressure. The relief of headache by vomiting is much more suggestive of brain tumor than the character of the vomiting.—*Craig, J. M. A. Georgia, July '46.*

STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

B. F. Austin, M. D.
State Health Officer

PEACETIME PROBLEMS

The postwar world to which all of us looked forward so eagerly during those trying months and years of world conflict is now with us. In some respects it has lived up to expectations. It has brought the return of all but a few of those who were living dangerously in foreign countries. It has brought to an end the harrowing fear that came with a glimpse of a telegraph messenger stopping in our neighborhoods or the ringing of the doorbell or telephone. It has brought an easing, if not a complete removal, of the restrictions and inconveniences which made our normal activities more difficult in wartime. It has brought a partial—but only a partial—ending of the grave personnel shortage which added greatly to the duties and responsibilities of those who carried on on the home front.

But the ending of the war has also brought many difficulties and problems. It has raised the specter of widespread unemployment. It has given the educational institutions the toughest assignment of their lives, finding teachers, housing accommodations and other facilities for the postwar army of young people now storming their gates in quest of knowledge. It has brought a sharp upswing in crime, especially among the young. It has brought rising prices and other economic upsets. It has created shortages of food and many other products essential to healthful living. It also has added to our perplexities in various other ways.

A spokesman for the Children's Bureau of the U. S. Department of Labor discussed some of these problems and difficulties, especially as they affect young people, in a recent statement. According to that spokesman, there are fewer employment opportunities open to young workers today than there were a year ago and "the whole youth employment situation bears watching," because "it has many dangerous potentialities." That warning was based upon information furnished by members of the Children's Bureau staff stationed in all parts of the country and also upon a number of reports from numerous agencies concerned with youth problems.

"There is no evidence as yet that we have made any appreciable headway in regaining ground lost during the war, when high school enrollment dropped by a million," Miss Katherine Lenroot, the Children's Bureau's chief, observed in commenting upon these reports and their significance. "Boys and girls who left school then for jobs have not returned to high school classes. We are now concerned with the possibility of idleness among the nation's youth, with thousands in the 14-to-17-year-old group neither in school, where they should be, nor regularly employed."

Miss Lenroot observed and called attention to the following trends in the youth employment situation:

1. Young veterans as a rule have the preference for the better types of jobs, specifically those offering the best opportunities for the future. (2) The high school diploma, which lost much of its value during the war, when the emphasis was largely upon brawn rather than brain, is regaining its former standing as a factor in obtaining and holding a good job. As in the prewar era, employers are again in a position to pick and choose, instead of being glad to take whomever they can get, and now can get high school graduates for the types of jobs for which high school graduation is normally a prerequisite. (3) A large number of employers are voluntarily raising their age requirements. Persons in charge of hiring and firing who formerly were glad to get youngsters of 16 to 17 are showing a tendency nowadays to insist upon applicants being 18 years old or older. This change is attributed to the fact, or at least the belief, that older boys are steadier. This trend is said to be particularly noticeable in manufacturing industries. (4) Opportunities for part-time work for those in school, so plentiful during the war, are dwindling. Indeed there is reason to believe, according to the

Children's Bureau spokesman, that "much of the decline in employment that has taken place so far, it is believed, is in kind of work." In this postwar era, which is rapidly developing a buyer's market, as far as employment is concerned, those with jobs want and can get full-time workers. Again in the words of that anonymous Children's Bureau spokesman: "Young people who are dependent upon vacation and part-time employment to meet part of their school expenses are often hard-pressed, particularly so when the older workers in the family are being laid off or are temporarily unemployed in the switch-over."

Schools, labor unions, industrial leaders, parent-teacher organizations and other individuals and groups have been urged by the Children's Bureau to study the youth-employment situation and do something about it before it becomes a more serious problem than it is at present. According to Miss Lenroot, community, State and Federal action is needed, because "fundamental social and economic policies are involved in the solution."

She has expressed the opinion that full employment offers a large part of the answer to the question as to how both educational and work opportunities may be kept open to American youth. Full employment, she declared, would mean not only the opening up of suitable jobs to a group who are especially in need of jobs but also the raising of the level of family income in many instances which "would make it possible for many to remain in school who would otherwise have to cut short their education and training in the hope of a job, poor as it might be."

In addition to what might be accomplished through a high level of employment for the population as a whole, Miss Lenroot urged that special attention be given to the peculiar needs of youth. She listed some of them as follows:

(1) Some form of student financial aid so that a lack of funds may not necessitate any student's dropping out of school. (Miss Lenroot also suggested that consideration be given to ways by which young people who are likely to benefit from educational advantages beyond the high school level might be able to obtain financial assistance which would permit them to continue with their education.) (2) Counselling service in the community so that young people facing the necessity of deciding between jobs and school, or trying to make up their minds as to which kinds of work they should choose for their livelihood, may have the advantage of skilled advice. (3) Good placement service to make it possible for young people to make wise decisions regarding the kinds of work they will do.

"The promise of the future must be kept open to this country's youth," she declared, "and we must never again close the doors to them as was done in the depression years. If we do they will look for a solution elsewhere, and we cannot be reminded too often that both Hitler and Mussolini gathered their first strength from the disillusioned and disinherited youth of their respective countries, from those who saw no acceptable future for themselves in the existing order."

Although Miss Lenroot and that anonymous spokesman for the Children's Bureau were thinking of the effects of postwar unemployment and economic maladjustment upon the general welfare and well-being of America's youth, the men and women of public health are thinking of those problems' health implications. We whose life work it is to man the battle stations of public health know that drastically lowered family incomes, widespread unemployment, with resultant months of time which must be spent in unproductive idleness, and the other ill fruits of the conditions Miss Lenroot described have a seriously bad effect upon health.

For instance, we learned long ago that a person's economic status plays an important part in determining his chances of escaping tuberculosis. The ability to pay for good, nourishing food means that one is able to build up reserve strength and strong resistance to the invading tubercle bacilli. Relatively high incomes mean more money for medical and nursing care and resulting ability to detect this and other diseases in an early, easily cured stage. They mean freedom from the nagging fear of the future and a peace of mind which the debt-slave never knows. They mean the ability to pay for decent places to live, which has been shown to make a great deal of difference in the battle against tuberculosis.

The relationship between tuberculosis and housing has been known for a long time of course, and it received considerable attention even before the war and the war-created housing shortage. In 1941, for instance, Nathan Strauss, at that time administrator of the U. S. Housing Authority, expressed the opinion that the campaign against the Great White Plague would be greatly handicapped unless the great mass of the American people, especially those of the low-income groups, could be provided with better housing than was available even then.

"Survey after survey has shown the intimate relationship between this disease (tuberculosis) and bad housing,' he said. "Tuberculosis must be fought with decent houses as well as with hospitals, with slum clearance as well as with Christmas seals."

A study made some years ago showed that more than 12 per cent of all tuberculosis deaths which occurred during a three-year period in the city of Cleveland occurred in a slum area containing less than three per cent of the city's population. The same survey showed that the tuberculosis death rate for a certain section of Detroit's slums was six times higher than that for the city as a whole. The Baltimore Sun disclosed some time ago that 11 tuberculosis deaths and 15 cases of this disease had occurred within just a few years in a single block in the city's worst slum area.

What is true of living standards and tuberculosis is also true of living standards and other diseases. Those who live well, or at least decently, have less to fear from heart disease, cancer, malaria, kidney disease, typhoid fever and almost every other form of illness you might mention than those who must live with the proverbial wolf constantly at the door. Dr. Herman M. Biggs spoke a solemn truth when he declared: "Public health is purchasable. Within natural limitations any community can determine its own death rate." He might also have extended his observation to the individual, saying that almost any person with the means to pay for good medical and nursing care, and the good sense to make the most of it, can, within natural limitations, determine how healthy he and his family will live and also how long they will live.

We speak proudly of the wealth represented by Alabama's fields, forests and streams. We boast of our smoking factory chimneys, our busy ports, our beautiful paved highways, our schools, our stately public buildings and the other physical symbols of our greatness. We have a right to be proud of all these. But real greatness has its roots in people. They alone make those other things possible. And young people offer the brightest hope of future greatness. With most of their lives still ahead of them and with vast potentialities of body and mind, they will shape the Alabama and the America which the world will know in the years that lie ahead.

It is essential, therefore, that we take our obligation to them seriously. We must see that they have opportunities for education, for jobs, for health and for the other good things of life. By helping them we shall be helping all of us.

BUREAU OF LABORATORIES

H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

MAY 1946

Examinations for diphtheria bacilli and Vincent's	400
Agglutination tests (typhoid, Brill's and undulant fever)	1,081
Typhoid cultures (blood, feces and urine)	1,078
Examinations for malaria	1,107
Examinations for intestinal parasites	2,414
Serologic tests for syphilis (blood and spinal fluid)	37,015
Darkfield examinations	51
Examinations for gonococci	4,593
Examinations for tubercle bacilli	1,845
Examinations for meningococcus	3
Examinations for Negri bodies (microscopic)	153
Water examinations	1,125
Milk examinations	3,018
Miscellaneous	763
Total	54,746

Streptomycin—Streptomycin has been highly effective in overcoming experimental tularemia infections in animals, although only a few cases have been treated. The drug appears to be highly effective against the wide variety of Salmonella infections, both those limited to the gastrointestinal tract and rarer systemic infections with organisms of this group. In view of the widespread character of such intestinal infections, particularly in the tropics, streptomycin should prove a great boon to humanity. —*Klumpp, Am. J. Pub. Health, July* '46.

BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

CURRENT MORBIDITY STATISTICS

1946

	April	May	E. E.* May
Typhoid	3	9	10
Typhus	22	28	25
Malaria	91	115	262
Smallpox	0	0	3
Measles	834	900	734
Scarlet fever	118	52	33
Whooping cough	54	72	197
Diphtheria	19	11	22
Influenza	77	83	179
Mumps	128	89	192
Poliomyelitis	1	2	3
Encephalitis	1	2	2
Chickenpox	151	92	104
Tetanus	5	4	3
Tuberculosis	287	381	278
Pellagra	2	4	20
Meningitis	16	11	17
Pneumonia	308	334	287
Syphilis	1090	1018	1762
Chancroid	19	19	10
Gonorrhea	1052	1069	438
Trachoma	0	0	0
Tularemia	0	3	1
Undulant fever	7	6	8
Dengue	0	0	0
Amebic dysentery	0	2	0
Cancer	210	220	0
Rabies—Human cases	0	1	0
Positive animal heads	91	75	..

As reported by physicians and including deaths not reported as cases.

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

BUREAU OF SANITATION

T. H. Milford, M. S. in S. E., Director

MINOR IMPOUNDED WATER PROGRAM

Contributed by
J. C. Clarke
Prin. San. and P. H. Eng.

The need for decentralization of supervision of minor impoundments—impoundages having an area less than 100 acres—has been recognized for the past ten years. In 1927, when the Regulations Governing the Impounding of Waters were adopted, the state and county health departments' activities were not so diversified or of the magnitude they have become during the past few years. This means that fewer persons were employed, and of those persons employed only a few were familiar with or trained along the lines of malaria control on artificially created lakes. This is one of the major reasons that the responsibility for the enforcement of the regulations was considered a function of the State Department of Health. With the present trend in the increased number of small impoundages that are being constructed and the increased public health services that the county health departments are rendering, the State Department of Health felt that the time had come when county health departments should include the inspection and supervision of small impoundages among their functions. The responsibility for the enforcement of the regulations is still a function of the State Department of Health.

In early 1940 an Impounded Water Manual was prepared and sent all county health departments. The manual contained the following:

1. Suggested Methods of Mosquito Control Measures on Small Artificially Created Lakes.
2. Interpretation of the Regulations Governing the Impounding of Waters.
3. Procedure and routine followed in placing an impounded water project under permit.
4. Letters and forms directed to the pond owner.
5. Letters, forms, and copies of letters to pond owners directed to the county health department.
6. Impounded water activities to be carried out by the county health department.
7. Impounded water inspection record and instructions for its use.
8. Equipment necessary for the collection and identification of larvae and adults of the three common anopheline mosquitoes found in Alabama.
9. Sketches of the three common anophine larvae and adults.
10. Keys to the identification of the larvae and adults of the three common anopheline mosquitoes found in Alabama.

Following a review and study of this manual by the county health department personnel, a series of conferences was held throughout the State. The conferences were attended by all health officers and sanitation officers. A complete discussion was had of the information contained in the manual and plans made for the counties in conducting their impounded water program.

Beginning in 1940 and continuing through 1941, most of the counties that had sanitation officers were visited by engineers of the Sanitation Bureau. An inspection was made of all known impoundages that were subject to the regulations. Instructions

were given in larvae and adult mosquito identification and an appraisal made of the particular sanitation officer's ability to conduct this phase of his program. Following the visit, a comprehensive report was prepared which gave (1) the physical condition of each impoundage, (2) follow-up work to be performed by the sanitation officer, and (3) a suggested plan for an impounded water program. This report was sent the county health officer and was intended to be used as a guide for the sanitation officer in conducting his program.

With our entry into World War II, there was drastic reduction in both county and state health department personnel. This curtailment in personnel, together with added duties peculiar to a nation at war, resulted in a diminution of minor impounded water activities. The reduction is shown in the following table.

Year	Number of Projects Under Supervision	Inspections by Personnel of	
		County	State
1938	389	169	84
1939	519	225	120
1940	771	493	385
1941	862	515	457
1942	930	593	83
1943	976	346	7
1944	1,039	198	0
1945	1,136	103	5

During 1946 it is planned to resume the minor impounded water program that was of necessity curtailed during the period 1942-1945. During the current year engineers of the Bureau will visit a majority of the counties having sanitation officers. Available personnel will determine the amount of assistance that can be given other county health departments.

There were, as of December 31, 1945, approximately 7 per cent of the people of the State living within one mile of minor impoundages which are on record. There are many more ponds that this department does not have on record. With the present trend in the construction of small ponds it is conservatively estimated that there are today more potential malaria transmitting mosquito breeding areas which affect a greater percentage of the population than has existed at any previous time. The importance of this phase of malaria control work cannot be overemphasized.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

BIRTH REGISTRATION AND THE UNIVERSAL QUERY

Contributed by
Ethel Hawley, Senior Statistician

Accurate and complete birth registration is one of the most important responsibilities of the State Health Department. As a means of verifying and completing the personal particulars entered on a birth certificate, the Bureau of Vital Statistics sends a photostat copy of each current certificate of live birth to the parents of the baby so that they may examine it and verify the correctness of all entries. Along with each photostat copy a "birth query" form is sent with instructions that it be signed by one of the parents and returned with any corrections that need to be made on the certificate. Birth query systems have been used in many states with varying degrees of success.

The Federal Bureau of the Census has, throughout its existence, been intensely interested in the completeness and accuracy of vital records. The query system adopted in Alabama was endorsed in 1943 by the Bureau. This system has proved to be so satisfactory that it has been adopted by nearly all states and is known as the "Universal Birth Query Form." Since August of 1945, the query forms have been furnished by the Census Bureau, as have franked envelopes used in mailing the queries free of postage.

In order to evaluate the progress of birth registration in Alabama, a survey was made of 10,140 birth certificates filed during the months of August and September of 1939, and 10,476 birth certificates filed during August and September of 1945. (For the purpose of this discussion the two groups of certificates will be referred to as the 1939 Sample and the 1945 Sample.) Certificates amounting to 2,101 (20.7 per cent) of the 1939 Sample have been corrected from queries while the 1945 Sample contained 2,786 (26.6 per cent) certificates that have been corrected from queries. Five hundred and twenty four certificates (5.2 per cent of the 1939 Sample) reveal corrections not made as a result of queries. They were made at the time certified copies

were requested, which added work and expense to office operation and delayed urgently needed certified copies. The 1939 Sample contains 485 certificates (4.8 per cent) which do not show the name of the registrant. The same incomplete item was observed on 157 certificates (1.5 per cent) in the 1945 Sample. At some future time certified copies of these incomplete records will be requested and it will be necessary to amend the records to show each registrant's name. Had the query forms been returned in these cases, the records would be complete.

A tabulation has been made of the 1945 Sample to appraise the quality of current certificates of live birth. A total of 4,066 (38.8 per cent) of the sample certificates were said by the parent of the child to be correct; 2,786 (26.6 per cent) were corrected from queries, and the status of the remaining certificates 3,624 (34.6 per cent) is unknown due to the fact that the queries were not returned. It cannot be assumed that unreturned queries indicate that the certificates are correct because it has been our experience that errors are often not detected until a request is made for a certified copy. It can be concluded that fully one-third of all birth certificates filed are later corrected either by query or amendment. A large portion of clerical time is consumed in correcting records. Approximately one-third of all records from which certified copies were made during 1945 were found in need of correction.

The 1945 Sample reveals that approximately twice as many birth certificates prepared by doctors are satisfactory as are found free of errors among those prepared by midwives. There are some factors which should be recognized here. Midwives usually practice among that element of our population falling within the lowest economic and educational levels. It is reasonable to expect a poorer quality of registration within these usually rural isolated areas where individual families have not attained much education. Frequently the midwife can hardly write her own name. The fact remains that good registration is essential in every part of the state. It is very important that we have complete and accurate reports from our more isolated and underprivileged people who are in great need of the benefits of public health services.

The most common errors revealed by Universal Queries are incorrect and misspelled names and failure to show the marital status of parents. The latter is more in evidence among the birth certificates prepared by doctors than among those prepared by midwives. Other errors, although less frequent but causing great inconvenience to parents, are incorrect birth date, incorrect sex, report of multiple births on one birth certificate, and failure to use the proper form in reporting a stillbirth.

The preceding report shows that the quality of birth records has improved and that the Universal Query form is contributing to this improvement. The effectiveness of querying is greatly reduced because of the frequent failure of parents to cooperate by returning the query form. Approximately two out of every three birth certificates are incomplete or contain one or more errors, and unless the queries are returned errors may not be detected until many years later when a certified copy is prepared. Birth certificates prepared by midwives more often contain errors than those prepared by physicians. The frequency of errors in all birth certificates is far too high. Errors decrease the statistical and legal value of records even though corrected.

Birth certificates serve two very important purposes. They are the source of all nativity statistics, local, state and national. They become legal records which are used to prove age, citizenship, family relationship, right to inherit and many other personal matters. Because of their statistical and legal importance it is essential that a correct and complete birth certificate is recorded for each birth. It is a legal responsibility and social obligation of the attendant at each birth to see that a certificate is properly and promptly prepared and placed in the hands of the local registration official. Although birth records may be prepared with the greatest care errors do occur. These errors should be promptly corrected. The Universal Query will bring errors to the attention of those who will correct them if the query is completed and returned. It is hoped that this discussion will focus attention on the importance of correct records and the function of the Universal Birth Query Form as a tool used in completing and correcting records.

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES— MARCH, 1946, AND COMPARATIVE RATES FOR 1946, 1945, AND 1944.

Births, Stillbirths, and Causes of Death	Number Registered—During March, 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births (exclusive of stillbirths)	5827	**	**	23.7	24.4	23.7
Stillbirths	149	**	**	24.9	24.2	32.2
Deaths (exclusive of stillbirths)	2140	1200	940	8.7	8.8	8.5
Infant deaths:						
Under one year	235	117	118	40.3	45.8	47.5
Under one month	134	72	62	23.0	29.6	28.6
Typhoid and paratyphoid 1, 2	3	3	-	1.2	1.2	0.4
Epidemic cerebro-spinal meningitis 6	4	2	2	1.6	2.4	3.7
Scarlet fever 8						
Whooping cough 9	1		1	0.4	2.8	2.0
Diphtheria 10	2	2		0.8	0.4	0.4
Tuberculosis, all forms 13-22	102	38	64	41.5	46.8	40.0
Malaria 28	3	2	1	1.2	1.2	0.4
Syphilis 30	28	5	23	11.4	10.6	13.0
Influenza 33	61	25	36	24.8	21.6	26.1
Measles 35	4	2	2	1.6		7.3
Poliomyetitis 36	1		1	0.4	1.6	
Encephalitis 37					0.8	0.4
Typhus fever 39	3	2	1	1.2	0.4	0.8
Cancer, all forms 45-55	172	117	55	70.0	65.1	57.9
Diabetes mellitus 61	33	24	9	13.4	15.5	14.3
Pellagra 69	10	9	1	4.1	2.0	1.0
Alcoholism 77	4	3	1	1.6	1.2	1.6
Intracranial lesions 83	205	112	93	83.4	76.1	75.1
Diseases of the heart 90-95	450	287	163	183.1	174.5	164.4
Diseases of the arteries 96-99	24	18	6	9.8	12.2	6.5
Bronchitis 106	4	3	1	1.6	2.0	1.2
Pneumonia, all forms 107-109	147	75	72	59.8	61.8	56.7
Diarrhea and enteritis (under 2) 119	9	3	6	3.7	6.1	2.4
Diarrhea and enteritis (2 and over) 120	1		1	0.4	1.6	1.2
Appendicitis 121	6	4	2	2.4	6.5	6.1
Hernia, intestinal obstruction 122	9	7	2	3.7	5.7	6.1
Cirrhosis of the liver 124	10	7	3	4.1	5.3	3.7
Nephritis, all forms 130-132	167	94	73	67.9	66.3	71.0
Puerperal causes 140-150	20	10	10	33.5	32.5	41.7
Puerperal septicemia 140, 142a, 147	4	3	1	6.7	6.5	20.0
Suicide 163-164	22	20	2	9.0	6.5	2.4
Homicide 165-168	24	3	21	9.8	10.2	6.5
Accidental deaths (exclusive of motor-vehicle) 169, 171-195	101	56	45	41.1	46.4	41.2
Motor vehicle, 170	69	47	22	28.1	14.6	9.4
All other known causes	288	179	109	117.2	131.4	145.6
Ill-defined and unknown causes 199-200	157	44	113	63.9	72.0	74.2

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births; deaths from specific causes per 100,000 population; deaths from puerperal causes per 10,000 total births. All rates are based upon the March report of the years specified.

**Not available.

Psychiatry—The present day concepts of psychiatry have been slow in developing, and this is especially noticeable when compared to the advances made in the other fields of medicine. In a measure, this retardation arises from the unwholesome attitude toward mental disorders which has prevailed throughout the ages. These conditions were thought to be inherited and thus incurable; hence, with the belief that the patient was hopelessly insane, it naturally followed that a certain stigma became attached to mental disease. This traditional attitude about mental illness greatly influenced the form of general management to which mental patients were subjected in the past.

Formerly it was not uncommon for the mentally ill to be tried as criminals and sentenced to death; similar ignorance and superstition produced the belief that they were possessed of demons, and often they were kept in chains in dark dungeons. It was not until a relatively short time ago that the mental patient was first regarded as a sick person who might deserve humane care and medical treatment. The geographical isolation of our present state hospitals for the mentally ill is an outgrowth of these ancient beliefs. Most of these hospitals are placed at the edge of a community completely removed from all normal activities and they are usually surrounded by large grounds further to insulate the inmates. The sole idea was to provide a place for custodial care where a person could be kept as economically as possible throughout the remainder of his life. There were no plans for treatment since no one entertained the idea that the mental patient could be restored to normal health.

It was not until some forty years ago that a real advance was made in the understanding and treatment of mental disease. A few intrepid physicians questioned the prevailing belief that mental disease was inherited, and they began to study the actions and expressions of patients to determine the underlying cause of such behavior. One of the greatest contributions to psychology and psychiatry was made by Dr. Sigmund Freud, who later developed the school of psychoanalysis. His studies showed that heredity played only a small part in the production of mental illness. On the contrary, it was found that all human behavior, both normal and abnormal, could be explained on the basis of a person's day to day life experiences, and he emphasized the influence which early environment had on a child's personality development. A notable contemporary of Freud, Dr. Adolph Meyer, who is known popularly as "the father of American psychiatry," expressed the same viewpoint about the cause of mental illness. He believed that mental and nervous disorders resulted from acquired life experiences, but differed from Freud's belief by maintaining that the illness is a reaction to the total life experiences of the person and not merely a reaction to the early environment of the child.—*Harris, Texas State J. Med., July* '46.

BOOK ABSTRACTS AND REVIEWS

Electrocardiography in Practice. By Ashton Graybiel, M. D., Captain, Medical Corps, U. S. Naval Reserve, Co-Ordinator of Research, U. S. Naval School of Aviation Medicine, Pensacola, Florida; and Paul D. White, M. D., Physician, Massachusetts General Hospital; with the assistance of Louise Wheeler, A. M., Executive Secretary, The Cardiac Laboratory, Massachusetts General Hospital; and Conger Williams, M. D., Assistant in Medicine, Harvard Medical School and Massachusetts General Hospital. Second edition. Cloth. Price, $7.00. pp. 458, with 323 illustrations. Philadelphia and London: W. B. Saunders Company, 1946.

The best way to learn to read electrocardiograms is to study under one who not only knows the subject but who also knows how to teach it. Since many of us cannot take the time for such personal instruction, we must look for the next best method of learning, namely, to read many electrocardiograms and then compare our opinion with that of a recognized authority. We must first learn the fundamental principles and then the variations which can be considered normal lest we be misled into interpreting as evidence of disease some little deviation from the normal tracing. Then comes the job of systematizing our study of each graph. From then on, it is a matter of experience in reading many, many abnormal tracings. For that experience one needs a large collection of electrocardiograms which might take years to gather if one had to take them all from his own experience.

The authors of this book, with a minimum of theoretical explanations, attempt to teach by letting the reader have an opportunity to read a collection of electrocardiograms which include almost every conceivable heart condition—the arrhythmias, coronary heart disease, congenital heart disease, rheumatic and syphilitic heart disease, the effect on the heart of trauma, diphtheria, acute rheumatic fever, tetany, hyperthyroidism and pericarditis. It includes also illustrative tracings showing the effect of various drugs on the electrocardiogram, both those used in the treatment of heart disease and those used for accompanying conditions.

It has been five years since the publication of the first edition of Graybiel and White, and during that time the usefulness of the electrocardiogram has been considerably extended, especially in its application to the diagnosis of coronary thrombosis. Much of this advance has resulted from the use of multiple precordial leads. These leads are discussed in detail in this new edition.

Many of the old illustrations have been replaced by new ones so that one who has read and studied the first edition will have an opportunity for new studies in the present one.

There are five summaries in the book which are extremely practical and which, alone, are worth the price of the book. One outlines the detailed method of analyzing an electrocardiogram. A second outlines the changes both in rhythm and individual complexes encountered in the various arrhythmias. The third outlines the electrocardiographic changes in various heart diseases, both congenital and acquired. The fourth summary deals with the progressive changes in the electrocardiogram following coronary thrombosis; while the fifth shows the effect of various drugs and physiologic processes on the electrocardiogram. There are over 100 new electrocardiograms for practice study.

The reviewer has read ten or more books on electrocardiography. Each has been good in its way. Each serves a useful purpose. The general practitioner would probably not be interested in Lewis' book which deals primarily with the theory of electrocardiography and the experimental basis on which the clinical interpretation is based. Masters' book is a classic as far as the normal varies due to position, body type and age, yet it does not answer the needs of the general practitioner. Levine's book is excellent, yet it is filled with many references to problems still unsettled. Scherf and Boyd have recently published a very practical volume, but its collection of graphs is small. This second edition of Graybiel and White seems to be the ideal volume for the practitioner of medicine who wants to learn as much as possible about electrocardiology. It contains everything needed but the time and mental effort which the reader must supply himself.

C. K. Weil

Shock Treatments and Other Somatic Procedures in Psychiatry. By L. B. Kalinowsky, M. D., and P. H. Hoch, M. D. With a foreword by Nolan D. C. Lewis, M. D. Cloth. Price, $4.50. Pp. 294. New York: Grune & Stratton, 1946.

This treatise represents one of the first real attempts to put into book form comprehensive instructions and data relative to insulin and convulsive therapies. During the past ten years many articles dealing with these subjects have appeared in American, British and European medical periodicals. Kalinowsky and Hoch give this to us now in a digested form, adding to it their own rich experience and wise deductions.

It is a book which will be used best by the psychiatrists already utilizing these procedures. Reading alone does not afford sufficient background for employing these techniques. As they so aptly say, "Shock treatment cannot be learned from books. The psychiatrist who wants to use it should spend a few weeks, or better, months, in studying the treatment at a hospital where it is applied expertly."

As important as the treatment itself is the selection of patients for treatment, as attested by their statement, "the physician treating the patient should have training in neuropsychiatry as well as in shock techniques."

The historical development for these treatments is adequately reviewed. Standard procedures are described in detail; the various accepted modifications are discussed knowingly.

Complications, medical observations and laboratory findings, psychological investigations, electroencephalographic findings, prognosis and prognostic tests and results are all carefully covered.

Insulin shock therapy, metrazol convulsive therapy and electro shock treatment and combined insulin-convulsive treatment utilize the first two hundred pages. However, continuous sleep treatment, fever therapy, refrigeration therapy treatment with intravenous sodium amytal and treatment with benzedrine, with dilantin and other pharmaco-therapeutic attempts, are briefly but adequately described.

Prefrontal lobotomy is allotted ten pages and theoretical considerations bring the reading material to a thoughtful end.

A bibliography occupying 42 pages is helpful to those who wish to delve into greater details.

In short, it is the book on shock treatments up to the present.

Frank A. Kay

Diseases of the Skin: For Practitioners and Students. By George Clinton Andrews, A. B., M. D., Associate Clinical Professor of Dermatology, College of P. and S., Columbia U.; Chief of Clinic, Dept. of Dermatology, Vanderbilt Clinic; Chief of Dermatology Clinic, Roosevelt Hosp.; Attending Dermatologist to Presbyterian Hosp. and Roosevelt Hosp.; Consulting Dermatologist and Syphilologist to Tarrytown Hosp.; Grasslands Hosp., Valhalla, St. Johns Hosp.; Yonkers, Greenwich Hosp. and the Beekman-Downtown Hosp.; Fellow of the American Medical Association, of the American Col. of Physicians, and the New York Academy of Medicine; Member of the American Dermatological Association, the American Radium Society, the New York Dermatological Society, New York Roentgen Society, and the Manhattan Dermatological Society; Member of the Drutsche Dermatologische Gesellschaft and Corresponding Member of Societe Francaise de Dermatologe et de Syphiligraphie. Third edition. Cloth. Price, $10.00. Pp. 937, with 971 illustrations. Philadelphia and London: W. B. Saunders Company, 1946.

Eight years ago the second edition of Andrews' Disease of the Skin was favorably reviewed in these columns. The third edition incorporates a few new disease entities brought out by war experience, such as frost-bite in fliers, incendiary bomb burns, and dermatitis due to war gases. It also incorporates many advances in chemotherapy, such as the use of penicillin in the treatment of impetigo, actinomycosis and syphilis; sulfa drugs in the treatment of various pyogenic skin infections; nicotinic acid and its derivatives in the treatment of pellagra, hairy black tongue and seborrheic dermatitis; thiamine chloride in the treatment of herpes zoster; riboflavin in the treatment of rosacea; D. D. T. in the treatment of diseases due to insect parasites; promine and diasone in the treatment of leprosy; carbarsone in the treatment of pemphigus; androgens in the treatment of alopecia; and moccasin venom in the treatment of purpura.

With the use of many new drugs, new skin rashes resulting from idiosyncrasies to them have become commonplace. Drugs causing such reactions include penicillin, the sulfonamides, thiouracil and dilantin. New industries have resulted in additions to the list of causes of contact dermatitis. Various hydrocarbons, detergents, plastics, resins, nylon, selenium and tin are listed among newer causes of dermatitis.

Surgical diathermy has assumed a more important role in treatment, and a new chapter has been added on "Roentgen Ray Physics as Applied to Dermatology."

The newer dermatologic diseases are for the most part rare conditions, such as angiomyoma, dermofibrosis lenticularis disseminata, epidermodysplasia verruciformis, hidrocystoma, histoplasmosis, exanthema subitum and exanthema infectiosum.

Anyone interested in skin diseases will find Andrews both an outstanding text and an excellent reference work, well written and beautifully illustrated. Those who own the previous edition will find enough changes to justify the purchase of the present third edition.

C. K. Weil

Preoperative and Postoperative Treatment. Edited by Lt. Col. Robert L. Mason, M. C., A. U. S. Cushingham General Hospital, Framingham, Massachusetts; and Harold A. Zintel, M. D., Harrison Department of Surgical Research, University of Pennsylvania School of Medicine; Assistant Surgeon, Hospital of the University of Pennsylvania. Second edition. Cloth. Price, $7.00. Pp. 584, with 187 illustrations.. Philadelphia and London: W. B. Saunders Company, 1946.

Since this book was first published in 1937, rapid advances in applied physiology, biochemistry, bacteriology and pharmacology have changed the method of management of many surgical conditions. No longer is an operation the only important part of surgical care. Adequate preparation for operation and intelligent postoperative care contribute to the reduction of both mortality and postoperative suffering. About twenty surgeons other than the editors have contributed to this volume. The management of the patient with heart disease, with hypertension and diabetes, and with diabetes has been described in detail. Individual chapters are devoted to the preparation of patients for operation on special regions of the body, such as the thyroid, the thorax, the biliary tract, the intestinal tract, the urologic system and the female reproductive tract. New material includes: Physical Medicine in Surgical Practice, Pre-and Postoperative Care in Gynecology, Pre- and Postoperative Care in Surgery of the Stomach and Duodenum, Intestinal Obstruction, Nutrition in Surgery, Surgical Risk in Pregnancy, Thrombophlebitis, Vitamin K Therapy, and Emergency Care of Cranial Injuries. The chapters on Shock, Water Balance, Transfusions, Acidosis and Alkalosis are of practical value to every surgeon. Some chapters, such as that on anesthesia, seem somewhat lacking in detail. The surgeon who is a student and the surgeon who wishes to reduce his mortality and morbidity have much to gain from a careful study of this book.

J. L. Branch

Synopsis of Physiology: By Rolland J. Main, Ph. D., Professor of Physiology, Medical College of Virginia. Cloth. Price, $3.50. Pp. 341, with 21 figures. St. Louis. C. V. Mosby Company, 1946.

This book is one of a series of synopses on medical subjects to appear recently. The attempt to condense the subject matter of human physiology into a book of 341 pages, but still adequately cover the subject, is a herculean task. As the

author admits, brevity has been achieved at the expense of being dogmatic. In addition, illustrations are limited and there are no references.

This book is not an elementary text suitable for nurses, college students or even beginning medical students. It was written, rather, for those advanced students and physicians who may wish to review and be brought up-to-date with the least amount of time.

It is the reviewer's opinion that several recent developments, particularly in the physiology of the nervous system, are inadequately summarized. The reader wishing to obtain more complete information will find himself handicapped by the lack of a bibliography, and reference to the standard physiological texts will often be necessary. Generally, however the author has accomplished his purpose of "covering the essentials" in a volume of very small size.

John M. Bruhn

The Modern Attack On Tuberculosis. By Henry D. Chadwick, M. D., and Alton S. Pope, M. D. Cloth. Price, $1.00. Pp. 142. New York: The Commonwealth Fund, 1946.

This little book, intended primarily for public health workers, should prove of value to physicians who are interested not only in the treatment of tuberculosis but also in its control and eventual eradication. The authors emphasize the fact that sufficient knowledge is now available to make this goal possible. Already the incidence of extra-pulmonary tuberculosis has shown a sharp drop due to the elimination of tuberculosis in dairy cattle and the widespread pasteurizing of milk. The early diagnosis of tuberculosis has been made possible by the x-ray, examination of sputum and the tuberculin test. Yet, despite these advances, a large proportion of patients are not diagnosed until their infection is well advanced. This can be remedied by the freer use of the x-ray, both in private practice and in mass examination of large groups of the population. That group of the population which is most likely to give the highest proportion of positive findings are the families and contacts of active causes. Next in line are workers in silicate dust and children in their teens. Early diagnosis and prompt isolation are important phases of the battle against tuberculosis. The sanatorium plays an important role in this campaign not only from the point of view of treatment but also through isolation and training the tuberculous in methods of protecting others from his infection.

The chapter on The Sanatorium is an excellent resume' of the accepted methods of treatment of tuberculosis in its various phases in the various age groups.

The first edition of this book was published in 1942. The present edition contains much new material: photofluorography, the role of mass x-ray in industry and other population groups, the role of an organized follow-up system, the financial aspects of hospitalization, rehabilitation, chemotherapy, immunization, and the Federal Case-Finding Program.

The book is small but it contains a great deal of valuable information.

C. K. Weil

Cornell Conferences on Therapy, Vol. 1. Edited by Harry Gold, M. D. Cloth. Price, $3.25. Pp. 322. New York: The Macmillan Company, 1946.

The Departments of Medicine and Pharmacology at the Cornell Medical college in the City of New York have for several years conducted round table discussions on the subject of therapeutics. Representatives of departments of basic science and practitioners of medicine meet informally to discuss the value of various therapeutic procedures or the logic in the use of certain drugs in the treatment of a disease. Over a period of nine years these conferences have brought out some very interesting discussions, some of which have been published in medical journals. The Editor has gathered together some of the most interesting topics and has presented them as informal discussions—just as they occurred over the conference table. They prove to be light reading, yet are packed with information of practical value to every practitioner.

Have you ever analyzed the contents of your medical bag to see if it is adequately equipped to care for any emergency in which you do not have time to wait for delivery from a druggist? It not, you'd be surprised to find how inadequate your supply of emergency drugs is. Try reading the Chapter on "The Doctor's Bag." You'll get many new ideas from it.

When you confined a patient to bed did you give any thought to the dangers of bed-rest? Did you realize that bed-rest causes more deaths than anesthesia and drugs combined? And that the Army has cut down materially on bed-rest in both medical and surgical cases? You'll get a good idea of the disadvantages of bed-rest if you read the second chapter in this series.

Other discussions deal with heart failure, abdominal distension, intestinal infestation, poisons of various types and the Rh factor. Each contains information of value, presented in a manner that sounds like the conversation in a good novel.

C. K. Weil

Gastro-Enterology. The Liver, Biliary Tract and Pancreas, and Secondary Gastro-Intestinal Disorders, Vol. III. By Henry L. Bockus, M. D., Professor of Gastro-Enterology, University of Pennsylvania Graduate School of Medicine. Cloth. Price, $35.00 for the three volumes, with separate desk index. Pp. 1091, with 427 illustrations. Philadelphia and London: W. B. Saunders Company, 1946.

The third volume of Bockus' Gastro-Enterology, the publication of which was delayed by the War, is now available and will be wanted by all owners of the first two volumes. The index to the three volumes is now available. To those unfamiliar with the first two volumes, it should be said that the set of three books dealing with the gastro-intestinal tract and its accessory glands was written by members of the Faculty of the University of Pennsylvania Graduate School of Medicine. The careful coordination of the various chapters results from the close association of the various contributors and results in a book which is more than a collection of articles dealing with related subjects.

The third volume deals with diseases of the liver, the gallbladder and bile ducts, the pancreas, intestinal parasites, gastro-intestinal allergy, and digestive symptoms secondary to extra-gastro-intestinal disease. There is an excellent description with illustrations of the microscopic anatomy of the liver, its physiology and the varied functional liver tests, also the different types of jaundice with their differential diagnosis. Over half of the book deals with these and other diseases of the liver and biliary tract. The remainder of the book deals with diseases of the pancreas, the causes of splenomegaly, the digestive symptoms resulting from disease of the cardiovascular and genito-urinary systems, neuro-psychiatric disorders and pulmonary tuberculosis.

These three volumes constitute an outstanding contribution to the subject of gastro-enterology presented from the medical rather than the operative viewpoint, yet the volumes should be as valuable to the surgeon as the physician since the value of surgery is so dependent on accurate evaluation of symptoms and interpretation of laboratory and x-ray findings.

C. K. Weil

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*A Textbook of Gynecology. By Arthur Hale Curtis, M. D., Professor and Chairman of the Department of Obstetrics and Gynecology, Northwestern University Medical School, Chief of Gynecological Service, Passavant Memorial Hospital, Chicago. Fifth edition. Cloth. Price, $8.00. Pp. 755, with 455 illustrations. Philadelphia and London: W. B. Saunders Company, 1946.

As a textbok of gynecology this volume of Curtis' is outstanding, not only because of the clarity of its descriptions but also because of the profuseness and high quality of its illustrations. The latter include photographs and microphotographs, anatomical and pathological drawings by Tom Jones, and some of the most beautiful color illustrations yet to be published in a medical text. The descriptions of operative procedures with the accompanying illustrations are outstanding. The pathological illustrations are probably the best of all.

Medical gynecology is not overlooked in the enthusiasm for surgery. The common conditions encountered in any office practice are described in detail—gonorrhea, trichomonas vaginitis, moniliasis of the vulva, leucorrhea, diagnosis of early carcinoma of the cervix, treatment of the menopausal syndrome, the handling of the problem of sexual maladjustment. A chapter entitled "The Gynecological Patient Presents Herself" is an excellent outline for the handling of the female patient from the first question as to the nature of her complaint until the diagnosis is made and treatment is ready to be instituted.

The advent of sulfonamide drugs and penicillin has necessitated the revision of the chapters on gonorrhea, chancroidal infection and syphilis. Advances in the field of endocrinology have made necessary the revision of the chapters dealing with that subject. The chapter on ovarian tumors has been completely rewritten with the addition of much new material.

The text should be a value both to students and practitioners and the gynecologist will probably find much to be gained from its pages.

C. K. Weil

AMERICAN MEDICAL ASSOCIATION NEWS

CONTAMINATED CHEESE BLAMED IN FOOD POISONING EPIDEMIC

CERTAIN TYPE OF BACTERIA TRACED TO BIG CHEESE SHIPMENT FROM ILLINOIS PLANT; BETTER SANITARY MEASURES URGED

Four investigators, reporting 384 cases of food infection traced to Colby cheese, say that this is the first time that the responsible bacterium, Salmonella typhimurium, has been definitely associated with cheese, according to an article in the August 3 issue of The Journal of the American Medical Association.

The investigators—C. B. Tucker, M. D., George M. Cameron, Ph.D., Mattie Pearl Henderson, M.S., and M. R. Beyer, M. D., from the Tennessee Department of Public Health, Nashville—state that "although there are a number of outbreaks of food infection due to Salmonella typhimurium reported in the literature, none definitely traceable to cheese could be found."

The article states that "beginning on March 26, 1945 and extending over a period of one week 250 cases of food infection occurred among residents of six towns in three counties in West Tennessee. At about the same time 100 cases occurred in Lawrence County, Ill., and 34 cases in Fulton County, Ky. The illness was characterized by a sudden onset with chills, fever with a temperature of 101 to 103 F., nausea, vomiting and diarrhea. The duration of the illness was from three to 10 days, depending on the severity of the case. No deaths occurred. . . .

"A history of the food eaten revealed that all patients had eaten cheese 24 to 48 hours prior to the onset of illness. In many families histories were obtained of persons becom-

ing ill after eating cheese, and those members of the families who did not eat cheese remaining well. Bacteriologic examination of a sample of the cheese resulted in the isolation of Salmonella typhimurium without difficulty.

"Investigation of the manufacture of the cheese was made by the Food and Drug Administration of the Federal Security Agency. As a result of this investigation it was found that a creamery in Illinois manufactured the cheese on March 12, 1945. It was learned that in the manufacture of the cheese a 10,000 pound capacity vat was half filled with milk, that later when the vat was to be completely filled the head cheesemaker found a mouse floating in the vat, fished it out, and completed the filling of the vat. As soon as the manufacture of the cheese in this vat was completed it was shipped to a packing company, where in turn a part of it was shipped to a grocery chain in Tennessee."

In the past, has been found that rats and mice may be infected naturally with Salmonella typhimurium and become carriers, contaminating food. Several outbreaks of food poisoning have been definitely traced to droppings from rodents.

In conclusion the authors agree with another investigator who stated that there is only one way to render cheese safe and that is by pasteurization. They say that "it is agreed that pasteurization of the milk and perhaps the curd in the process of cheese manufacture should be carried out. Besides the value of pasteurization of cheese from the health standpoint, it has been stated that a better and more uniform quality of cheese can be made from properly pasteurized milk than from raw milk. In addition to proper pasteurization, it is believed that other sanitary measures should be strictly enforced in the manufacture of cheese. Pasteurization of the milk alone would not have prevented the occurrence of this outbreak."

PENICILLIN EFFECTIVE AGAINST ACUTE SKIN DISEASE CAUSED BY ANIMALS

Penicillin has come to the aid of workers whose occupations bring them in contact with animal hides or other animal products. This antibiotic drug has been found effective in the treatment of a burrowing infectious disease of the skin known as anthrax, according to an article appearing in the August 3 issue of The Journal of the American Medical Association.

The authors are Major Harold V. Ellingson, Medical Corps, U. S. Army, Capt. Paul J. Kadull, Capt. Henry L. Bookwalter, Medical Corps, Army of the United States and Lieut. Calderon Howe, Medical Corps, U. S. Naval Reserve, Station Hospital, Camp Detrick, Frederick, Md.

The anthrax bacillus is transmitted to man through contact with diseased animals or infected animal products. Anthrax is characterized by a gangrenous carbuncle-like lesion surrounded by swelling and an abnormal accumulation of water in the tissues. The disease is always serious.

Reporting on 25 cases, the authors say that in several patients the infection occurred at sites of previous wounds. One of these lesions appeared at the site of a cigaret burn on the face, two developed at sites of abrasions on fingers and one occurred in a hangnail. Among the remaining 20 patients several believed that they had had ordinary pimples at the sites where anthrax lesions later appeared.

The first evidence of infection is the appearance of a small red spot on the skin accompanied by intense itching. The spot grows within a few hours into a sac containing fluid. This sac may rupture early, leaving a small ulcer, or may enlarge by direct extension or by development of a ring of such sacs. Within two to six days after onset, the sac ruptures and begins to dry and the swelling recedes. In drying, a tough black crust is formed which is characteristic of this infection. This can usually be removed easily in 10 to 14 days after onset but is sometimes firmly embedded and may persist for long periods, finally leaving a punched-out ulcer which slowly fills with new skin tissue.

Treatment was begun as soon as diagnosis was made, the article states. All patients were treated with penicillin in total dosages from approximately 1,000,000 units to over 4,000,000 units. The authors find it significant that in 22 of these cases the anthrax bacilli disappeared from the lesions in 24 hours or less.

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Miscellany

TOO GENERAL USE OF PENICILLIN SALVES CAUSES SKIN REACTIONS

THREE PHYSICIANS SAY DRUG PRODUCES SKIN INFLAMMATION WITH SCALING, LESIONS AND WATERY DISCHARGE

Numerous people indiscriminately using penicillin ointment mixtures report suffering from skin inflammation, according to three Cincinnati physicians, who add that "with increasing use of penicillin, reactions may become even more frequent."

The physicians, writing in the June 13 issue of The Journal of the American Medical Association, are Leon Goldman, Forman Friend and Lester M. Mason, all from the Department of Dermatology and Syphilology of the University of Cincinnati College of Medicine.

Although reports by many investigators have been presented on reactions to penicillin, the authors state that "our interest concerns chiefly the contact irritations from topical applications of penicillin in ointment mixtures."

With this in mind, the doctors made a study of approximately 350 patients with various types of skin lesions and found that 16 reacted to contact with penicillin by developing a skin inflammation, 13 of whom are here reported. The article points out that "although penicillin ointment was used all over the body and even in the mouth. . . , facial lesions seemed predisposed to the development of a dermatitis in spite of the fact that lesions of this area were not the most frequent lesions treated."

Approximately 32 male patients with acute infections of the face caused by microorganisms were treated with penicillin ointment, and of those patients nine developed a contact dermatitis. Approximately eight female patients with varying types of this same infection on the face and neck were treated with penicillin ointment and three developed a dermatitis. The authors state that their study suggests caution in the use of penicillin ointments in facial infections, especially in the male. One other contact dermatitis due to penicillin ointment was found on the legs of a patient.

The article reveals that reactions to penicillin ointments are manifested in several different forms, such as skin rash, measlelike eruptions with scaling of the skin or the eczematous type with inflammatory skin disease, lesions and a watery discharge.

"In our present state of knowledge regarding the causes of penicillin dermatitis," the authors write, "not too much practical advice can be given regarding prophylaxis except to use penicillin only where and when indicated. . . for superficial topical therapy and not indiscriminately for everything."

SUNBURN RESPONSIBLE FOR MANY SKIN DISEASES, DOCTOR WARNS

Warning avid sun enthusiasts that sunburn may lead to a variety of skin diseases, George Clinton Andrews, M. D., of New York, writing in the current issue of Hygeia, health magazine of the American Medical Association, says:

"Although sunburn is common it can be regarded in no other way than a severe injury to the skin. It is sometimes the forerunner of such diseases as piebald skin, tumors of the skin, chronic nontuberculous lesions of the skin and other disorders. Infection of the sunburn blisters may lead to impetigo and other infections of the hair follicles and boils."

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THE CLINICAL IMPORTANCE OF CONGENITAL ANOMALIES OF THE URINARY TRACT

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New Orleans

The bulk of the renal parenchyma arises from a part of the lateral cell mass in the region of the pelvis. During embryologic development, at about the end of the ninth week, the kidneys ascend and rotate to assume their normal position in the lumbar region. This process of migration and rotation affords ample opportunity for arrests in both development and position, giving rise to the variety of congenital lesions found in the study of urologic patients. Many of these lesions produce neither symptoms nor damage and are, therefore, of no clinical significance. The important lesions are varied, and over a number of years have lead to numerous diagnostic and therapeutic errors.

About once in every thousand cases one kidney will be absent. In such cases the solitary kidney may fail to migrate to its normal position in the lumbar area; this represents a true ectopic kidney. If the kidney remains near the site of origin in the pelvic region, its future is insecure. The emptying capacity of such kidneys is usually poor so that hydronephrosis and infection eventually lead to severe impairment of renal function. An ectopic kidney in a woman may interfere with normal gestation. Such kidneys have been removed as pelvic tumors during gynecologic operations. Solitary kidneys which have ascended to a normal position have also been removed because of acute pathologic conditions or injury without knowledge that there was no kidney on the opposite side; such accidents were followed by death from uremia in from one to three weeks.

Structural anomalies include hypoplastic kidneys, solitary renal cysts and polycystic renal disease. *Hypoplasia of the kidney* is unilateral and is the result of defective development of the glomeruli, tubules, calices and pelvis. These kidneys are small but usually show some function according to the various renal function tests. They are more susceptible to infection than are normal kidneys, and once they become infected they usually remain so because of their inability to concentrate urinary antiseptics in sufficient strength to kill organisms. The treatment is nephrectomy if the kidney is diseased; otherwise, it may be left alone. This brings up considerations of additional importance. If disease invades the kidney on the opposite side, the hypoplastic kidney is not capable of supporting life so that in reality these patients fall into exactly the same group as those with a solitary kidney and have to be treated on the same conservative basis.

Solitary cysts of the kidney are unilateral and may also be multilocular. A large, smooth, tense mass can be felt in the renal area. Unusually large cysts may produce a dull ache in the kidney region by dragging on the renal pedicle but they are otherwise symptomless. Their chief importance lies in the fact that they must be differentiated from malignant cortical tumors. They occur in the same age group and produce the same deformity in the pyelogram. In doubt-

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ful cases operation should always be performed in order to establish the differential diagnosis. These cysts may be treated by either aspiration or surgical removal. Aspiration is not only therapeutic but is diagnostic as well and is the method of choice in the aged and in patients whose general health is poor. A cyst located at either pole of the kidney may be resected and the remaining portion of the kidney preserved. Centrally located cysts and multilocular cysts, on the other hand, often require nephrectomy.

Polycystic renal disease is, with rare exceptions, bilateral. Faulty development leads to the formation of blind tubules which become distended with fluid. The disease, usually recognized at about 40 years of age, is hereditary and can be traced from one generation to another. The cysts are found in both the cortex and medulla, are of all sizes, and constantly encroach upon the functioning capacity of the kidney. Large nodular masses, which often reach enormous size, can be felt in both renal areas. Clinical manifestations include pain, which may be the result of the weight of the mass itself, hemorrhage into the cyst or infection, and in addition all the symptoms associated with progressive renal failure. There is an associated hypertension in approximately 50 per cent of cases. The diagnosis is made from the physical findings and confirmed by roentgenography of the upper urinary tract. The course in these cases is much the same as that of chronic interstitial nephritis and the same treatment, chiefly low protein diet and free fluids, is indicated. Surgical intervention may be required for three reasons: infection, hemorrhage into the cysts, and relief of pressure on renal tissue. Nephrectomy should never be performed except for most unusual reasons.

Horseshoe Kidney—Fusion of the two kidneys across the midline forming a horseshoe kidney may occur before they ascend from the pelvis about the end of the seventh week of embryonic life. These kidneys ascend to assume their normal position in the lumbar area but they do not rotate so that the pelvis is anterior and the calices point toward the midline. The isthmus connecting the two is usually composed of renal parenchyma and in the majority of cases fusion is at the lower poles. Pressure of the isthmus upon the mesenteric vessels and nerves may produce chronic gastrointestinal symptoms which may require section of the isthmus for relief. These patients also have bladder disturbances and chronic constipation. The abnormal position of the pelvis in fused kidneys provides poor drainage so that hydronephrosis, infection and stones are liable to develop in horseshoe kidneys about ten times more often than in normal kidneys. In these cases tumors may invade the isthmus as well as the renal cortex. The gastrointestinal symptoms produced by a horseshoe kidney emphasize the importance of considering it as a possibility in patients with chronic gastrointestinal complaints and without abnormal gastrointestinal findings.

Abnormalities in Blood Supply—The blood supply of the kidney begins before it ascends from the pelvis. Hence, it is not surprising that anomalous vessels may arise from any of the normal vessels along the course of migration. Ectopic kidneys obtain their blood supply from adjacent vessels. The blood supply to horseshoe kidneys varies in both the number and location of the vessels—hence, the importance of careful dissection during operations for this type of anomaly. Abnormal vessels in normally placed kidneys are usually found in the upper and lower poles. Vessels attached to the upper pole of the kidney are not important except that they give rise to troublesome bleeding in careless freeing of the upper pole during operations upon the kidney. Those that lead to the lower pole, however, may compress the ureteropelvic junction and contribute to the development of hydronephrosis.

Congenital strictures of the ureters are of unknown origin. They occur chiefly at the two ends of the ureter although any portion of the canal may be involved. Those at the ureteropelvic junction are due to valves, hypertrophy of the mucosa at this area, and aberrant blood vessels referred to in the preceding paragraph. Whether or not an aberrant vessel may be the primary cause of the obstruction at the ureteropelvic junction or simply acts as a contributing factor is not entirely clear. In the majority of these cases the condition is unilateral although bilateral obstructions at the uteropelvic junction may occasionally be encountered.

The symptoms of ureteral stricture vary according to the degree of obstruction. As hydronephrosis develops, pain results from inability of the kidney to empty itself. Infection naturally follows, as a result of which there are recurrent attacks of chills and fever with bladder irritation and persistent pyuria. Retention of urine and infection provide excellent conditions for the formation of stones. The diagnosis of obstructions at the ureteropelvic junction is made by complete study of the urinary tract. Intravenous urograms in the majority of cases will provide fairly accurate knowledge as to the location of the anomaly; if additional information is required, this may be supplemented by retrograde pyeloureterograms.

The treatment of obstructions at the ureteropelvic junction is surgical and consists of resection of the redundant hydronephrotic pelvis with plastic reconstruction of the ureteropelvic junction. A nephrostomy tube is inserted to divert the urinary stream until healing takes place. Aberrant vessels should be cut and any bands or adhesions involving the ureteropelvic junction should be removed. Careful consideration should be given to aberrant blood vessels going to the lower pole of the kidney as in an occasional case this may constitute the principal blood supply to this area. This point can easily be determined by compressing the vessels and observing any effect that it may have on the circulation of the lower portion of the kidney. Sometimes it may be necessary to cut and reanastomose the ureter rather than to ligate the aberrant vessels. Nephrectomy is required for those cases in which the renal function has been destroyed by back pressure and infection. On the other hand, final decision as to whether or not a kidney should be removed may have to be made at operation.

Stricture of the body of the ureter comprises less than 6 per cent of all congenital strictures of the ureter. The symptoms and pathologic changes are similar to those produced by higher obstruction. Treatment varies according to the condition found. Ureteral dilatation by bougies may be tried for a period of time provided a favorable response is obtained. Open operation is required if ureteral dilatation is unsuccessful. In the majority of these cases the strictured area is too wide to permit resection and reanastomosis. In such cases the strictured area is incised and allowed to recanalize over a ureteral splint. A nephrostomy tube should then be inserted to divert the urinary stream until healing takes place—usually from four to six weeks. Nephrectomy becomes necessary when more conservative measures fail.

Strictures at the ureterovesical junction may be unilateral or bilateral and are of two types: those that involve the entire thickness of the ureteral wall and those in which there is stenosis of the orifice involving only the mucosa. These are commonly known as ureteroceles although they are sometimes referred to as intravesical cysts of the ureter. These cysts form a balloon-like mass as they fill under pressure from ureteral peristalsis and disappear as the urine empties into the bladder through the stenosed orifice. They vary in size from a few millimeters in diameter to a large balloon-like mass capable of producing obstruction at the internal urethral orifice. The amount of damage produced by obstruction to the ureterovesical junction is again proportional to the degree of obstruction. It varies from slight ureteral dilatation to complete decompensation of all the structures above the point of stricture. In addition to an occasional obstruction at the bladder neck from a large ureterocele the symptoms produced by obstruction at the ureterovesical junction are the same as those produced by lesions higher up, with the exception that these patients often have pain and tenderness along the entire course of the ureter, more especially if infection is present. The diagnosis of obstruction at the ureterovesical junction, again, is based upon an accurate and complete study of the urinary tract. The urine in the majority of these cases is infected and the type of lesion is determined by plain roentgenograms and intravenous urograms, supplemented by cystoscopy and retrograde pyeloureterograms.

Treatment of obstruction at the ureterovesical junction varies according to the amount of damage produced by the obstruction. Dilatation of strictures at this area has not been successful in our hands. From our standpoint it is much better to incise the ureteral orifice with a scissors or fulgurat-

ing current. In young children ureteral meatotomy may have to be done through a suprapubic cystostomy opening.

Treatment of ureteroceles is both simple and satisfactory. The cystic mass is easily resected with the cutting loop and the edges cauterized with the fulgurating current. Large ureteroceles in young children may have to be approached through a suprapubic wound. An occasional case will be encountered in which the kidney will be found to be destroyed by back pressure and infection requiring removal of both the kidney and the ureter.

Another anomaly of clinical importance is an *abnormal ending of the ureter.* Through defects in development the ureteral orifice opens at some point other than the normal position at the lateral angle of the vesical trigone. In the majority of cases the ectopic orifice is one of reduplicated ureters. The orifice may be found in any of the surrounding structures including the rectum and vagina. If an ectopic orifice is proximal to a competent sphincter muscle, symptoms are usually absent until hydronephrosis and infection take place. Those distal to the sphincter muscle produce constant dribbling of urine. The treatment is surgical. If the ectopic ureter is the only one for the kidney, and in the absence of severe renal damage, transplantation to the bladder may be indicated. If the ectopic ureter is one of duplicated ureters, heminephrectomy with removal of the ureter should be done. If both segments of the kidney are surgically diseased and the opposite kidney is competent, nephrectomy should be performed.

Anomalies of the bladder include reduplication, exstrophy, affections involving the urachus and diverticula. *Reduplication of the bladder*, although rare, is encountered often enough to justify its discussion. There are two types. The first is complete reduplication in which case there are two separate bladders, two urethras and usually two rectums. The second type is the incomplete variety in which there is a septum dividing the bladder into two compartments. A case of incomplete reduplication of the bladder in a child twelve weeks old was referred to us within the past year. The septum was found to be in the frontal plane. The ureter opened into the posterior compartment and the urethra into the anterior with the communication between them too small to allow complete emptying of the posterior pouch so that in effect it produced the same picture seen in obstructions at the bladder neck, that is, urinary retention and infection. In addition to the bladder anomaly the patient also had congenital absence of the right kidney. The septum was removed and normal bladder function restored.

In *exstrophy of the bladder* there is absence of the anterior bladder wall and overlying abdominal wall, absence of the pubic bones and usually complete epispadias. The posterior wall of the bladder, the trigone and ureters are on the surface of the abdomen so that the patient is constantly wet with urine as it spurts from the ureteral orifices. The diagnosis is obvious at a glance. The usual treatment for exstrophy of the bladder is diversion of the urinary stream into the sigmoid by ureterosigmoidostomy and subsequent excision of the bladder with plastic repair of the denuded area. The associated genital anomalies in both male and female are corrected by plastic surgical procedures. The optimal time for transplanting the ureters is within the first year, preferably within the first six months. After the bowel has developed its flora of pathologic bacteria, there is increased danger of ascending infection. We have encountered patients with markedly dilated ureters which could not be transplanted into the sigmoid, leaving cutaneous transplants as the only method of treatment.

Anomalies of the urachus are occasionally encountered. If the allantois fails to close, there results a *urinary fistula* with the external opening at the umbilicus. If the allantois closes at both ends and the remainder of the tract fails to become obliterated, a *urachal cyst* may be the result. This is recognized as a smooth, round mass in the midline below the umbilicus. These may occasionally break through at the umbilicus and discharge mucoid material or if they become infected, a frank abscess is the result. If an internal opening communicates with the bladder, the pouch contains urine and these patients often have infection and formation of stones. The diagnosis of this type is made by complete urologic examination. The treatment of all types of affections of the urachus is excision.

Congenital diverticula of the bladder,

aside from those secondary to congenital infravesical obstruction, are unusual. From a clinical standpoint they are given the same consideration as acquired diverticula. Large pouches are encountered in which there is a narrow opening into the bladder incapable of emptying, and eventually all become infected. Symptoms are usually absent until infection occurs after which there is bladder irritation and persistent pyuria. The diagnosis is made by complete urologic study with particular care being exercised to rule out obstructive lesions. The treatment is excision.

Congenital fistulas between the urethra and rectum usually occur in the posterior urethra although a fistula between the rectum and the anterior urethra will occasionally be encountered. We have recently seen one of this type in a child 5 years old. These fistulas are characterized by the appearance of urine in the feces or feces in the urethra or both. Urinary infection is the common complication. Communications between the rectum and posterior urethra require a triple barreled sort of procedure. The urinary stream is diverted by suprapubic cystostomy and the fecal stream by colostomy at a later date. The fistula is repaired by approach through a perineal incision similar to that used in performing perineal prostatectomy. The same procedure is used for the closure of fistulas opening into the anterior urethra, with the exception that diversion of the urinary stream is not necessary.

The most important infravesical lesions are those that occur at the bladder neck: *congenital prostatic valves, contractures of the internal vesical orifice* and *congenital bars.* Of less importance is *congenital stenosis of the external urethral meatus.* Obstructions at the bladder neck in children occur much more frequently than is generally recognized. The urinary disturbances produced by these lesions is first noted by members of the family, chiefly the mother or grandmother. The child urinates much more frequently than normal, has a great deal of straining and often turns red in the face from the increased effort to empty an overdistended bladder. The mother may also feel a mass in the lower abdomen while giving the child a bath. In all these cases infection eventually occurs, after which the complaints are increased bladder discomfort, chills and fever and persistent pyuria. Reduced renal function and impaired general health follow in rapid succession. The pathologic changes above the point of obstruction are identical with those that occur from prostatic obstruction in older men, that is, retention of urine, damage to the bladder from increased effort to overcome the obstruction and finally complete decompensation of the entire upper urinary tract from the combined effects of back pressure and infection. The diagnosis is based upon the history, physical findings, chiefly persistent pyuria, and is confirmed by a complete study of the urinary tract. The importance of remembering that these lesions are not uncommon cannot be too strongly emphasized. Any child who has a urinary infection which does not clear up or greatly improve with proper treatment within ten days or two weeks should be suspected of having some congenital lesion which interferes with the normal elimination of urine. Complete study becomes increasingly important in cases with recurrent or persistent infection. The treatment involves a simple surgical procedure which yields, in early cases, results which are among the most satisfactory obtained from any type of operation. Prolonged suprapubic drainage will be indicated in the occasional case with vesical ureteral reflux through markedly dilated ureters and impaired renal function from back pressure and infection. This affords the best opportunity for the urinary tract to become compensated. Stenosis of the external meatus is readily recognized and requires nothing more in the way of treatment than simple meatotomy.

SUMMARY

The diagnosis and treatment of the congenital abnormalities of the urinary tract which are of clinical importance have been discussed. Abnormalities of the kidney include solitary kidney, hypoplastic kidney, solitary and multiple renal cysts, horseshoe kidney and abnormalities in the blood supply. Congenital strictures of the ureters and abnormal ending of the ureter are the most frequently encountered ureteral abnormalities. Anomalies of the bladder include reduplication, exstrophy, diverticula and affections of the urachus. The most important infravesical lesions are congenital prostatic valves, contractures of the internal vesical orifice and congenital bars.

HEADACHES ASSOCIATED WITH INJURIES OF THE CERVICAL SPINE

PRELIMINARY REPORT

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The observation that occipital and sometimes vertex headaches may result from lesions of the neck and cervical spine is not new.[1] Some observers have hinted at, but have failed to emphasize strongly enough, the important part that neck injuries may play in producing the symptoms ordinarily attributed to head injuries.[2]

Within recent years many investigators[3] have reported the association of cervical degenerative osteoarthritis with radicular pains in the occiput, neck, shoulders and arms, and one observer[4] mentions the occurrence of face pain in this condition. In most of the reported cases the diagnosis of arthritis has been based on roentgen findings of hypertrophic spurring or reduced intervertebral joint space, but it is admitted that these findings take months or even years to develop and might not be found in early cases. Fortunately the investigations of Hadley[5] and Davis[6] have shown conclusively that one may postulate injury to the cervical spine from alterations in the normal lordosis and from changes in the posterior articulations without waiting for the development of a reduced intervertebral joint space or development of spur formation. Finally, the close relationship between *localized* cervical osteoarthritis, reduced intervertebral joint space, local loss of lordosis, and a herniation of the nucleus pulposus at that level is becoming increasingly apparent.[7]

It is fairly well known that high cervical arthritis might cause pain in the occipital region, but it is not generally recognized that cervical spine lesions may cause pain anywhere in the head or face, or that the pain may be accompanied by autonomic disturbances such as dizziness and light-headedness. Campbell[8] has shown experimentally that irritative lesions of the upper three cervical vertebrae may cause pain to be referred to the nose, eyes, forehead or face, as well as the parietal and occipital regions. The pathways by which this pain is referred are uncertain. The work of Inman[9] suggests that this pain may be a sclerotomal rather than a dermatomal referral. However, certain characteristice of the pain, together with its sensitivity to histamine, suggest that it may be mediated through vasomotor pathways. Further in-

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7. Murphey, Francis: Personal Communication.

8. Campbell, Douglas G., and Parsons, Clare M.: Referred Head Pain and its Concomitants, J. Nerv. & Ment. Dis. 99: 544 (May) 1944.

9. Inman, Verne T., and Saunders, John B. deC. M.: Referred Pain from Skeletal Structures, J. Nerv. & Ment. Dis. 99: 660 (May) 1944.

vestigations on the anatomic basis for referral of this pain will be reported at a later date.

Within the last few months a group of more than fifty patients suffering from various types of headaches have been examined in order to determine the part that lesions of the cervical spine might play in producing their symptoms. Many of the patients had symptoms which caused them to be diagnosed as posttraumatic head syndrome or postconcussion syndrome, and others had been called atypical trigeminal neuralgia, hysteria, histamine cephalalgia, or migraine. The clinical picture varied considerably from patient to patient but so far an unexpectedly high percentage of the group have shown unequivocal evidence of injury to the cervical spine. Various means of treatment, including histamine desensitization, head traction, and roentgen therapy to the cervical spine, are being tried. The complete results will be reported at a later date. For the present, three illustrative cases will be reported to draw attention to the diversity of symptoms seen, and to the importance of clinical and roentgen examination of the neck in similar cases.

Case 3: A 27 year old woman was admitted to O'Reilly General Hospital, Springfield, Missouri on 27 March 1945 complaining of recurrent headaches. The headaches had begun suddenly in February 1943, and she had had five attacks up to the time of admission. Several of the attacks were associated with an upper respiratory infection during which she coughed a great deal. The headaches always began suddenly with severe sharp pains in the occipital regions bilaterally and would soon become generalized. When the headache had been present for thirty to forty minutes nausea and vomiting would occur. Severe headache and nausea and retching would continue for one to four days. The headaches disappeared as suddenly as they came, leaving only a mild residual soreness in the occipital region for a day or two. The patient would then be completely free of pain until the next attack. During the headaches she could produce slight relief of the pain by putting her hands behind her head and lifting her head from the pillow. Except for vague blurring of vision during the acme of the headaches, there were no visual disturbances.

Although the patient had participated frequently in athletics, she did not remember ever having sustained a head or neck injury. There was no history of recurrent headaches in any member of her family.

Examination disclosed local tenderness over the spinous processes of the third and fourth cervical vertebrae, and lateral pressure on the spines of these vertebrae disclosed an unusual amount of mobility. Firm pressure on the transverse processes of the third and fourth cervical vertebrae on the right or left reproduced the sharp occipital pains which the patient experienced at the beginning of the spontaneous headaches, but the pain disappeared immediately on relieving the pressure.



Figure 1

An electroencephalogram, lumbar puncture and roentgenograms of the skull were normal. Roentgenograms of the cervical spine (Fig. 1) showed a localized straightening of the spine at the level of the fourth and fifth cervical vertebrae with possible encroachment on the third intervertebral foramen on the right.

Ergotamine tartrate did not relieve her headache. Three-tenths (0.3) mg. of histamine (as histamine acid phosphate) did not immediately reproduce her headache,

but forty minutes later onset of an attack of her typical headache occurred. This was not relieved by 0.32 cc. of 1:1000 epinephrine. Three hours after the headache had begun, head halter and traction were applied and in one hour the sharp pains and the vomiting had ceased and only mild occipital soreness remained. In every previous attack the pains and vomiting had lasted at least twenty-four hours.

Comment: This case is of interest due to its similarity to simple migraine. The relief of the pain by head traction offers additional evidence that the headaches were due to the cervical spine abnormality. Horton[10] mentions delayed precipitation of headaches by histamine and this case might also have been called histamine cephalalgia on this basis.

Case 8: A 39 year old soldier was admitted to O'Reilly General Hospital, Springfield, Missouri on 29 May 1945 with a transfer diagnosis of trigeminal neuralgia. Early one morning in 1936 he was awakened by severe pain in the left parietal region. Since that time he had had intermittent attacks of pain at irregular intervals, sometimes having an attack every two or three weeks, and sometimes going several months without any pain. The attacks invariably began while he was recumbent, either early in the morning or while he was lying down after lunch. The pain would begin suddenly in the left parietal region near the vertex, spread first to the left temporal region and then into the upper posterior teeth on the left. Each attack had been the same, had invariably been left sided, had lasted one to six hours and had been accompanied by flushing of the face, lacrymation and nasal obstruction, all on the left side. The pains were sharp, cutting and throbbing in nature. At no time had he had any associated visual disturbances. During the pain he had noted a hypersensitive spot in the left parietal region, but no true trigger zones had ever been present. There had never been any pain in his neck or arm.

The patient did not remember ever having had any head or neck injury. His mother had headaches associated with nausea and vomiting but nothing more was known about her headaches.

Examination disclosed a generalized increase in the deep reflexes with bilateral toe muscle flexor responses (Rossilimo sign). Firm pressure over the left transverse process of the second and third cervical vertebrae exactly reproduced the patient's spontaneous pains. Pressure in a similar location on the right produced a similar but much milder sensation.



Figure 2

Roentgenograms of the cervical spine showed a straightening of the normal curvature (Fig. 2) with narrowing of the joint space between the bodies of the fifth and sixth cervical vertebrae. Oblique projections disclosed encroachment (arrow) on the intervertebral foramen at this level bilaterally by what appeared to be calcification of a protruded nucleus pulposus.

Subcutaneous administration of 0.3 mg. of histamine (as histamine acid phosphate) failed to reproduce the spontaneous headaches but produced pain over the *right* eye.

Comment: This case bears a close resemblance to atypical trigeminal neuralgia, and, except for the lack of reproduction of the headache with histamine, has all the clinical

10. Horton, Bayard T.: The Use of Histamine in the Treatment of Specific Types of Headaches, J. A. M. A. 116: 377 (Feb. 1) 1941. Idem. Symposium: Head and Face Pain, Tr. Am. Acad. Ophth. (Sept.-Oct.) 1944.

features of a classic case of histamine cephalalgia.

Case 29: The patient, a 26 year old soldier, was admitted to O'Reilly General Hospital, Springfield, Missouri on 18 June 1945 with a diagnosis of cerebral concussion. On 12 April 1945 the concussion resulting from a bridge being blown up threw him against a nearby house, but he did not lose consciousness or suffer any immediate unpleasant effects. Eight hours later he began to notice tinnitus in both ears, headache and dizziness (not vertigo). He continued to remain in combat in spite of severe headaches until wounded in the right shoulder on 18 April 1945. This wound healed uneventfully but he continued to have headaches and dizziness. On admission to O'Reilly General Hospital he was having daily headaches lasting six to twelve hours, sometimes occurring during the day but usually appearing rather suddenly two to three hours after lying down in the evening. A sharp throbbing pain would appear in the left frontal region, soon become bifrontal, and then spread to the parietal region and eventually to the temporal region bilaterally. The pains were aggravated by lying on his left side, by stooping, bending, and by exercising. No chronic headache was present between the attacks. The effect of climatic changes and alcohol on the headaches had not been observed. Except for a "dancing sensation" in front of his eyes at the acme of the headaches, there had been no visual disturbances. He had never had any actual pain in the neck, but since the blast he had noticed a grinding sensation in the low cervical spine on turning his head. A mild tinnitus was present in both ears constantly. Dizziness on sudden change of position was a prominent complaint.

Axial compression of the cervical spine in flexion caused local pain in the region of the second cervical vertebra. Firm pressure on the right transverse processes of the second, third and fourth cervical vertebrae caused only local pain but did produce a sensation of dizziness. This sensation was not a true vertigo and was not due to carotid sinus stimulation. Pressure in the same location on the left produced a sharp pain exactly like the spontaneous headaches except that it was limited to the left side of the head. This pain persisted a minute or two after release of the pressure.



Figure 3

Otologic and ophthalmologic examinations disclosed no abnormality. Roentgenograms of the skull were normal. Roentgenograms of the cervical spine (Fig. 3) taken in various projections in flexion and extension disclosed a limitation of motion in the anteroposterior direction with abnormal straightening of the lower segments. There was minimal subluxation of the fifth on the sixth cervical vertebra, and also some evidence of abnormal rotation of the third cervical vertebra.

Subcutaneous administration of 0.06 mg. of histamine (as histamine acid phosphate) was followed in five minutes by appearance of a headache similar in all respects to the patient's spontaneous headaches except that the pain in the left temporal region was more severe than usual. Administration of 0.13 cc. of 1:1000 epinephrine caused disappearance of most of the headache in thirty minutes.

Application of overhead neck traction with thirty pounds weight during the time the patient was having headaches constantly resulted in substantial diminution of the severity of the pain during the time the trac-

tion was being used and occasionally would abort an attack completely.

Comment: This patient is representative of many seen recently. His disabling complaints were clinically compatible with a diagnosis of posttraumatic head syndrome, but appear to have been the result of an injury to his cervical spine rather than to intracranial structures as was first supposed.

SUMMARY

A preliminary investigation of the relationship between head and face pain and lesions of the cervical spine reveals an unexpectedly high incidence of clinically and roentgenologically demonstrable cervical spine abnormality. Three illustrative cases are reported. It is recommended that more attention be directed to the cervical spine in cases of obscure head and face pain, and especially in posttraumatic head syndrome.

PEDIATRIC PROBLEMS IN GENERAL PRACTICE

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Pediatrics is relatively new among the various medical specialties, but no other division of medicine has a broader scope or greater possibilities and responsibilities. The question is often raised as to whether pediatrics is a true specialty or general medical practice limited to the younger age group.

Regardless of the classification, we are all aware that the general practitioner cares for many infants and children. Thus he and the pediatrician have much in common, and it is the purpose of this paper to discuss a few pediatric problems familiar to us all—convulsions, intussusception, the treatment of pinworms, and the practical significance of heart murmurs in children.

CONVULSIONS

Being one of the most common symptoms encountered by pediatrician and general practitioner alike, the subject of convulsions needs no introduction. It is well to remember that there is no specific difference in one convulsion as compared to another regardless of associated illnesses. Secondly, the fit which appears at the height of a fever is no indication that spontaneous convulsions will not appear in future years. Indeed, the infant or child who has a convulsion associated with fever demonstrates that his central nervous system is less stable than the child who does not have such a reaction. In later life, fifteen to twenty per cent of children who have so-called febrile convulsions will have spontaneous attacks.[1]

To digress momentarily from the diagnosis and treatment of various types of convulsions, it is not rare for the general practitioner to refer a child to a pediatrician to determine whether or not the child has epilepsy. Often, this same child is sent by the pediatrician to the neurologist in the belief that the latter has some magic method—usually an electroencephalograph—by means of which a definite diagnosis of epilepsy can be made. This concept is incorrect. As valuable as the electroencephalograph is, it records only a phase of the child's cortical activity. The diagnosis of the type of attack can be determined only by an accurate history, a description of the seizure, and by long observation of the patient. Having the patient go to a hospital for elaborate tests in an effort to determine the cause of the convulsions is, except in the rare case, an expensive, useless procedure. A practical pediatric neurologist has classified convulsions according to the extent of their involvement.[1] If we remember three types of seizures, we shall have a good working classification for the majority of cases seen in medical practice. In minor convulsions, there is usually only a momentary loss of consciousness with no loss of postural tone, almost no muscular movement except that of the eyes, and the patient does not fall. The second group is characterized by a sudden loss of postural tone and sudden falling, but there are no involuntary muscular movements. Lastly, we have the major convulsion with sudden loss of tone and falling, associated with irregular clonic muscular

Read before the Association in annual session, Birmingham, April 16, 1946.

1.Buchanan, Douglas: M. Clin. North America, Jan. 1946, 163-173.

movements so characteristic of the syndrome we now call epilepsy.

The problem for the physician is to stop the attack and prevent further episodes if possible. It is well to remember that enemas, sponge baths, and other popular remedies have no evidence to confirm that they are of value. It is true that such rituals keep the parents and neighbors busy. Fortunate is the fact that the majority of convulsions have terminated by the time the doctor arrives, but for the patient who is still convulsing, sodium phenobarbital, sodium amytal, avertin, paraldehyde, ether or chloroform may be used. If the child is in status epilepticus, it is probably best to administer avertin in an initial dose of 75 milligrams per kilogram of body weight. In four to six hours, the rectal administration of 25 to 50 milligrams per kilogram may be given to continue this safe means of producing continuous narcosis.

The prevention of future attacks is often a great trial to physician and patient alike. The treatment of the various types of convulsions mentioned above varies, and it is important therefore to make a classification of the syndromes. One fact should be of prime importance: regardless of the type of disorder, treatment should be continued for at least one or two years regardless of the absence of convulsive seizures. Since we do not know the true pathogenesis of convulsions, our means of treatment are empirical. At the present time, our best drugs for preventing the major types of seizures are phenobarbital and dilantin. There is no specific dose, and the physician must determine the quantity or combination to be used chiefly by trial and error. For the prevention of minor attacks, so-called petit mal epilepsy, a new drug called tridione is reported to give excellent results. Until this product is available for general use, the old helpful mixture of bromide and tincture of belladonna is frequently of benefit. Glutamic acid and medaral are additional drugs used in controlling these fleeting attacks. Regardless of the many methods of treatment, we must continue to grope for improvements until the definite cause of convulsions is determined.

INTUSSUSCEPTION

Another condition which may be termed a pediatric emergency is intussusception. It has been surprising to me how many cases of intussusception have been seen by physicians and at first diagnosed as upset stomach or colitis. There are undoubtedly numerous exceptions but the typical cases are so similar and have such a definite pattern of symptoms that the disease is really one which may often be diagnosed over the telephone; but because the diagnosis has evidently been puzzling at times, it may not be amiss to review the chain of symptoms one encounters.

In the majority of instances the infant is between five and twelve months of age and is in good health. Suddenly the child screams, bends forward with pain and strains. This onset is so definite that the mother will state the exact time when it began. Following these symptoms, which last only a moment or two, the child is no longer in pain—but he is not emotionally normal and appears to be worried. If one carefully notices the faces of these little patients he will find a somewhat typical appearance. After a few relaxed moments, the baby has another attack of pain, and within a reasonably short time he almost always passes a small amount of fecal material, accompanied by dark red blood which does not clot. The presence of blood causes the mother to call the doctor, and, in such instances as described above, time should not be lost before a thorough examination is made. By time the physician sees the child there have been several attacks of the colicky pain, the abdomen is moderately relaxed and a definite mass can be palpated. This mass is often described as sausage-shaped. It may be anywhere along the location of the colon, but the majority of patients I have seen have had a mass in the region of the transverse colon, a little to the left of the midline. The mass is firm but not hard and is usually slightly movable. One of the most important facts upon which the diagnosis is based is the spurt of dark red blood which follows withdrawal of the examining finger after a rectal examination.

If the diagnosis is not made soon after the onset, then the symptoms of intestinal obstruction appear: the child begins to vomit, the cramping pains continue, there is a cessation of bowel movements, the abdomen becomes distended, toxicity appears as dehydration increases, and the child becomes

more and more stuporous until he dies. These symptoms are not those of the dysentery group, and even in summer months when dysentery is prevalent one should not lose sight of the possibility of making an incorrect diagnosis in a case of intussusception. Once the diagnosis is made, surgical reduction is called for immediately; to delay is to increase the chances of a fatal termination.

PINWORMS

Stomach-ache is occasionally a symptom of an extremely common pediatric condition, pinworms. General practitioners diagnose pinworms almost as frequently as pediatricians. The last few years have brought a change in the treatment. Formerly, salt water, quassia chips and a host of other substances were used in rectal irrigations. This type of treatment is not entirely satisfactory and gives only temporary relief.

The more recent treatment is based upon the knowledge that approximately two weeks are required for ingested pinworm eggs to hatch. Enteric coated tablets of gentian violet are prescribed in a dosage of 10 mg. per year of age, not exceeding a daily dose of sixty milligrams regardless of the age of the patient. The calculated amount is given daily for one week to kill the adult worms. Then follows a week free of medication. The gentian violet is given in the same amount during the third week to eradicate any newly-hatched parasites. As a rule, the treatment works well, but if there are several children in the family it is wise to treat them all rather than to permit one child to infect another.

HEART MURMURS

At some time or other during almost every child's life the doctor hears a heart murmur. We all see several patients a month who come to us to "find out whether his heart is really bad." Too often, a physician will tell the mother that the child has a cardiac murmur without explaining its significance. The parents of the child become extremely worried, as might be expected. In many cases, much psychologic damage has been done to the child as well as to the parents; occasionally the parents are told that "if the child lives, he may outgrow it; or maybe he can be operated upon and the condition corrected." Without further explanations, such information is extremely harmful. It is often difficult to ascertain whether a murmur is significant and only repeated examinations can settle the question. In general, I believe that if one remembers the characteristics of four murmurs he is able to give good advice in the majority of cardiac problems occurring in infants and children.

Most frequent is the functional murmur. As a rule, it is systolic in time, is localized, is not heard in the back and is loudest at the pulmonary area in the second left interspace. This murmur may be heard in a well child or at the height of a fever. Regardless of the associated general condition, the murmur in itself is of no significance and its presence should be explained in such a manner as to cause no alarm.

The remaining three murmurs are evidence of organic heart disease. The first of these is the localized defect of the interventricular septum. This murmur is systolic in time, harsh, widely transmitted and heard best at the third and fourth interspaces just to the left of the sternum. In the uncomplicated case, the prognosis is excellent although the child will probably have the murmur all his life. There is no reason for limiting activity or for the child to live any other way than would a normal active youngster.

Patent ductus arteriosus is more significant although less frequent than the previous murmurs. There is no audible abnormality during the early months of life, but during the latter part of the first year a systolic murmur may be heard. There is a gradual development of the typical murmur: harsh, rumbling, occupying the entire cardiac cycle but louder in the systolic phase. The children who have this murmur are not cyanotic, and if cyanosis is present then the murmur is not due to a patent ductus arteriosus or there are one or more associated abnormalities. It is best in these patients to exert care to prevent infections of any sort, especially upper respiratory infections. The activity is not necessarily limited if the child appears healthy in other respects. Recently, operative treatment of these patients has been done if one or more of the following indications are present: if the patient has bacterial endocarditis; if there is cardiac decompensation, or if there is retardation of physical or mental growth. Thus this abnor-

mality may be treated surgically but not indiscriminately.

Perhaps the most common type of organic heart murmur is that occurring as a part of rheumatic fever. Although the murmurs associated with various valves and with insufficiency or stenosis differ as to their characteristics, one may safely state that a systolic murmur, blowing in type, that is heard best at the apex of the heart, which is transmitted toward the left, and which is heard better when lying down than when sitting is, in all probability, due to rheumatic fever. With severe cases of rheumatic fever or a progression of the disease, diastolic murmurs may be added, but the above mitral murmur is characteristic and is the most common diagnostic aid in rheumatic heart disease.

If to these four murmurs we add the cyanotic type of cardiac abnormality caused by the tetralogy of Fallot and will remember their characteristics as well as the prognosis in each type, we shall be able to give accurate general advice to our patients' parents and not create cardiac cripples of many young children. The puzzling murmur should be an indication to send the patient to a reputable cardiologist, for many conditions can be potentially serious. If we remember that no parent is normal when his child is sick and we do not give that parent cause to worry when none exists, then we have truly performed a good deed. In fact, sympathetic understanding and sound judgment are invaluable aids to knowledge in the treatment of children.

115 S. Union St.

Treatment of Hernia—In the repair of large ventral and incisional hernias the important element is to free the fascial ring which, incidentally, is often much smaller than it would first appear to be, and then to suture the edges of this fascial ring to each other. The author has personally never seen an incisional hernia where the fascial edges could not be brought together. Fascial and other types of patches should be used, therefore, only as an adjunct to the major repair and should not be applied to bridge a defect. In performing the major repair free fascial grafts and non-absorbable sutures are, in my opinion, the agents of choice, and, of these, non-absorbable sutures are preferable. In most instances, a large hernia will have to be repaired longitudinally, since the original abdominal incisions are in most instances longitudinal. In some cases, however, vertical flaps may be used. Practically always some overlapping of the flaps utilizing mattress sutures by a modified Mayo technic is feasible.—*Harkins, New Orleans M. & S. J., August* 1946.

Indiscriminate Use of Curare—Within the past few years various reliably standardized extracts of curare have become available for clinical use in conditions in which diminished skeletal muscle power is deemed desirable. Clinically, curare has been used for obtaining adequate muscular relaxation during upper abdominal surgical interventions, during thoracic surgical procedures, to aid in bronchoscopic examinations, and to relieve muscular spastic conditions and the convulsions of tetanus and shock therapy. The use of curare in poliomyelitis has been commented upon in these columns quite recently. Its employment in dysmenorrhea has been reported upon within the past few months.

Such a multiplicity of suggestions for its usage indicates an extensive employment of a quite dangerous compound. It is also a known fact that many doctors delegate its administration to subordinates, including nurses and technicians. Since the intravenous route of administration usually is chosen, such a delegation of power is initially illegal. That is not, however, the most serious hazard. Rather, the marked physiological impairments of circulation and respiration which may be brought about under the hands of persons not adequately trained either to recognize or care for such upsets are to be particularly decried.

Marked respiratory depression during anesthesia may lead to such a deficient oxygenation of tissues, particularly those of the central nervous system, that permanent mental impairment develops. There also is the definite hazard, with reduced aeration, of a marked increase in small to massive atelectatic areas of the lungs. Such a condition may well lead to an increased postoperative morbidity and mortality. Where adequate postoperative hospital records have been kept these facts have become more and more emphasized as enthusiasm for the use of curare-like drugs has increased. Actually, death by complete skeletal muscle paralysis may occur. The muscles of respiration are the last group affected by curare and hence peripheral respiratory failure is its mode of causing death.

Experimentally, it can be shown very easily that at each administration of curare there is some decrease in blood pressure. The more rapid the administration of the drug the sharper the decline and the slower the recovery of the pressure. If 2 mg./Kg. is injected intravenously into a dog in 30 to 60 seconds, the period of time usually employed for the clinical administration of a dose of curare, blood pressure values may decline to one-half or less of the pre-injection level. An occasional animal may be killed by such a procedure.

Fortunately, man usually does not develop a fall in blood pressure when curare is employed. As wider usage of the drug has been made, there have occurred occasional cases, however, in which the blood pressure declines in an alarmingly similar manner to the results noted in the laboratory.—*Orth, Wisconsin M. J., Aug.* '46.

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COMMUNITIES NEEDING PHYSICIANS

While there are many communities in Alabama in need of physicians, two, in particular, have sought the aid of the office of the Association in calling attention to their situations.

One of these is Robertsdale in Baldwin County, embracing an extensive territory in a rich agricultural area, served by four physicians, one of whom writes: "This is a good place, with good roads and good people. I will throw everything to a young doctor if he will come here. I haven't made less than ten thousand dollars a year for six years and a young man that is active can do more."

Titus, a rural community in Elmore County, not far removed from Montgomery, is also appealing for a physician. Reports are that the people there are prepared to extend every aid to assure a successful practice to the one who may choose the locality for his residence.

It may be that there are men returned from service who have not yet made a selection of a place in which to locate. The communities referred to offer distinct possibilities, and there are others that merit consideration. Details may be had from the Secretary of the Association at 519 Dexter Avenue, Montgomery.

WHY DOES MEDICINE GET KICKED AROUND?

Reprinted from N. Y. State J. M., July 15, 1946

A correspondent writes to ask why the medical profession gets kicked around. He says: "Take some facts cited from an article in the April 13 number of the Journal of the American Medical Association. The development of penicillin. The use of blood and blood substitutes in the treatment of shock. The reduction of the death rate of the wounded to 4.5 per cent from 8.25 per cent in World War I. Three cases of tetanus among the immunized personnel in the Army. One case of tetanus among the battle casualties. The effect of DDT in the practical suppression of typhus fever. Influenza and malaria dealt with as never before. Practically one-third of the medical profession volunteering for duty with the armed forces.

"Why does the profession that has trained the men who have accomplished these results allow itself to be kicked around by professional do-gooders and ambitious politicians?

"In the course of hearings held in Washington in April on the National Health Program, Dr. Mountin, of the Public Health Service, stated that medical research and medical education, as well, are properly functions of the Federal government. If this is so, we have then in the making a Federal empire of medicine.

"During the past twenty-five years, the high standards of medical practice which have increasingly characterized American medicine have been the direct result of a calculated program for the continuous education of the young physician. The future programs of medical science, the nature of service that will be rendered or the type of person who will choose the profession of medicine in years to come seem of little concern to Senators Murray and Wagner.

"A profession which has accomplished the advances we have mentioned might be thought justified in its request to be spared from government control. Is there anyone who does not know that, with very few exceptions, when government enters integrity flies out of the window? Politicians would soon want medical patronage for their districts and the qualifications of any doctor

would not be 'What do you know?' but 'Whom do you know'?"

He asks whether there is anyone who does not know, that with very few exceptions, when government enters in, integrity flies out of the window. Obviously there are some who do not know it, or will not admit it; or knowing it, do not care. Medicine is a minority group easily kicked around, its aims are specific; it is not an organized pressure group nor, in our opinion, should it be. Its physicians know nearly everyone in the country at some time or other between the cradle and the grave. But the doctors know people professionally, in large measure, not for political purposes.

Medicine is paying a price it seems to us for allowing itself to become fixed—to its hospitals, to its large schools, to its own state and National societies, in a word, to the multitude of tangible, taxable fixtures which have now become so necessary to its functioning as to invite governmental management, control and direction, price fixing, and regulation.

Good medicine suffers in many peoples' minds because of bad distribution, excessive costs to consumers. They think that doctors know medicine but that they do not know how to distribute what they know and can do.

In their opinion the doctors would not be kicked around if medicine were government managed. In some ways this confidence in government efficiency is naive and refreshing. It has refreshed New Zealand no end, and is about to refresh Great Britain. What chance have we in the United States to avoid what other people have invited for themselves? Doctors can only advise, the people decide.

MEMBERSHIP ACCESSIONS AND LOSSES

Physicians recently received into the membership of County Medical Societies, and whose names have been added to the roster of the Association as published in the July 1946 Journal, are as follows:

Dozier, Slater M., Fulton, Clarke
St. Amant, Chester P., Grove Hill, Clarke
St. Peter, M. A., Sylacauga, Talladega
Stevens, Wilkin R., Bartley, W. Va., Tuscaloosa

Losses sustained by death of members:

Martz, Harry, Birmingham, Jefferson
Tucker, John S., Dixiana, Jefferson
White, A. L., Thomasville, Clarke

Dr. Paul H. Parker, Margaret, St. Clair, was removed from the roster because of change of residence to Meridian, Mississippi.

PROGRESS IN THE PEDIATRIC STUDY

The response in returning the questionnaires concerning the facilities for child care has been very gratifying. Some 1830 physicians have been sent the forms and 750 of these have returned them completed. This response would indicate that the physicians in Alabama are keenly aware of the necessity of having factual data for combatting the proposed schemes for nationalizing medical practice. Some physicians have felt that since they see either no children or very few children that there is no reason for them to return the forms. This is not the case since the purpose of the study is not concerned with an individual's practice but primarily to learn what facilities are available for child care. This study is being conducted in every state in the Union; and since the South is at present the "whipping boy" of the national press, it would be very gratifying for Alabama to show that its physicians are both alert as to its problems and cooperative in reaching for a solution.

Poliomyelitis—The onset is, as a rule, very abrupt and the symptoms progress rapidly and uninterruptedly from one stage into another. The early symptoms are those of headache, vomiting, fever, and gastro-intestinal disturbance. The fever usually lasts from five to ten days and falls by lysis. The pulse rate is usually in proportion to the fever. A more rapid rate may indicate an early bulbar involvement and a poor prognosis. Hyperesthesia is an early symptom. This may be quite general, and the child may complain of pain at the slightest touch, but it usually is more marked over the large nerve trunks and the back. Pain is an almost constant symptom in the early stage and is present in the neck, back, abdomen, or extremities.

The pain varies in severity. Sedatives or opiates may be necessary to relieve it. The duration of the pain is usually short, but it may last well into the convalescence. Tremors or twitching of muscle groups are sometimes early symptoms. Convulsions are rare. Stiffness of the neck and back are important signs.—*Ritter, J. Indiana M. A., Aug.* '46.

STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

B. F. Austin, M. D.
State Health Officer

CONGENITAL VENEREAL DISEASES

The victim of any serious disease is always an object of pity and sympathy. But the victim of such a disease who owes his condition to someone else's shortcomings, whether of actual wrong-doing or of neglect, is particularly pathetic. Probably the most touching examples of that are to be found among the uncounted thousands of people of all ages who suffer physical pain, mental retardation, social disinheritance and many other ills as a result of other people's disregard of society's moral code and/or those other people's failure to protect the innocent from their own infections. I refer particularly to the victims of congenital syphilis and the other venereal diseases acquired before or at birth.

"Children always have been the most pathetic victims of the Spirocheta pallida, which causes syphilis, and of the gonococcus, which causes gonorrhea," declared Dr. Theodore Rosenthal, director of the Bureau of Social Hygiene of the New York City Health Department, in an article published in *The Merck Report*. "One of the greatest tragedies in medicine is the large group of infants who come into this world already handicapped with such serious infections. These innocent victims, infected through no fault of their own, are, in many instances, destined to suffer physical stigmata and maldevelopment, social ostracism, difficulties in school (either total exclusion or loss of time) and, later, inability to secure gainful employment. All of these factors combined result in a stunted, inferior youth of little value to self, family and community."

It goes without saying that the medical profession and public health authorities are in complete agreement with Dr. Rosenthal in his sympathy for the innocent victims of congenital syphilis and other venereal diseases congenitally acquired. It also goes without saying that the curbing of this form of human misery—misery of the body, the mind and the spirit—is one of the challenging and formidable problems of public health. It certainly has been pyramided to a position of importance in Alabama's public health program.

Fortunately, syphilis among prospective mothers, like syphilis generally, is easily recognized. All that is needed to stamp it out is to have all women and girls to submit to physical examinations or blood tests as soon as they find that they are to become mothers and follow up positive diagnoses with proper treatment. Similarly, those infected with gonorrhea can find out definitely that they have this disease by submitting to physical examinations and having laboratory studies made of specimens. With these relatively easy and inexpensive means of diagnosis and treatment at hand, it is surprising that such large numbers of American mothers allow their babies to develop from the initial stage of pregnancy to full maturity and go through the entire process of childbirth without taking the trouble to find out about this most important matter. However, prospective mothers' indisposition to protect their babies against syphilis or lifelong blindness as a result of gonococcus infection is not particularly surprising when we consider how many people invite typhoid by not taking the trouble to ascertain the purity of their drinking water or milk or not going to the slight trouble and inconvenience of taking typhoid vaccination. And the woman who does not protect her offspring against venereal disease and the man who is unwilling to do anything about typhoid fever have innumerable counterparts who do not bother to screen their houses against malaria-transmitting mosquitoes, who invite advanced cancer and tuberculosis by not having examinations made when they observe the early-stage symptoms of these diseases, and who "don't want to be bothered" about anything else of a health-protection nature.

Just as the authorities have taken many other matters having to do with the individual's and the community's well-being out of the hands of the individual, so they have taken steps to prevent women from cursing their offspring with venereal dis-

ease. Information supplied by the American Social Hygiene Association shows that 35 of the 48 states now require prenatal tests for syphilis. Unfortunately for Alabamians, this State is not one of that number, as efforts by the State Department of Health and other groups, as well as interested individuals, to have such legislation passed by this State have been unsuccessful thus far. However, the ill-effects of this unsuccess have been softened somewhat by other procedures in effect here, notably the Henderson Act, requiring the blood-testing for syphilis of all Alabamians between the ages of 14 and 50, with a few minor exceptions, and the treatment of all persons found to be infected. As that law takes in prospective mothers in its broad sweep, the number of undetected and untreated cases of syphilis among mothers should be substantialy reduced. Unfortunately, however, there is always the danger that, like anyone else, a prospective mother may contract this disease after she has taken the blood-test and been found free of it. Thus a negative blood test in 1946 is not an absolute guarantee against being the cause of a case of congenital syphilis in 1947 or 1960. Public health authorities and the leaders of the State's medical profession are hopeful, therefore, that legislation making prenatal blood-testing compulsory in this State will soon be enacted. By the same token, these guardians of the public's health hope that Alabama babies will also be protected against blindness and the other ill fruits of gonorrhea in their mothers.

In view of the fact that such a large number of states have enacted laws requiring prospective mothers to submit to blood tests for syphilis and that other measures are in effect to detect cases of gonorrhea before they can do grave damage to innocent babies, you might be inclined to think that the average American baby is born into the world without being in any serious danger from this source. The facts, however, indicate otherwise. I quote again from Dr. Rosenthal:

"How extensive are venereal infections in pregnancy? A survey of prenatal clinics in all parts of the United States several years ago showed an average prevalence of syphilis of about six per cent. In private practice the prevalence of syphilis in pregnancy is estimated to be somewhat lower. Individual practitioners have reported rates varying from ½ of one per cent to 3.5 per cent, with the largest number of physicians reporting a prevalence of about one per cent. Precise statistical information on the prevalence of gonorrhea is far less available. In civilian practice, it has been estimated that gonorrhea is approximately three to five times as frequent as syphilis, although in the Armed Forces the ratio has been greater in many areas, the number of newly acquired gonococcal infections being ten times as great as newly acquired syphilis infections."

And what is the chance that a syphilitic woman or girl will give birth to a congenitally syphilitic baby?

Medical experience has shown that, if the prospective mother has syphilis and receives no treatment for the disease during pregnancy, she will give birth to an infected baby five times out of six. In other words, the chances are five to one that her infection will be transmitted to her offspring. If, however, that same mother receives proper treatment during pregnancy, she may be expected to give birth to a healthy baby, entirely uninfected with syphilis, ten times out of eleven.

Women of our day who have syphilis and, motherlike, wish to do everything possible to protect their babies against infection are much more fortunate than their own mothers facing the same problem. For today the medical profession and the public health clinics have the new wonder drug penicillin at their command. Instead of having to submit to treatment during the entire period of pregnancy, as was the case until about ten years ago, the woman or girl who now awaits the great adventure in childbirth is treated with this new drug for a period varying from a week to ten days. This does not mean, however, that the days of the older syphilis preparations, such as bismuth and arsenicals, are over or even numbered. Present medical practice seems to indicate that the old and the new procedures should be used to complement each other. Naturally, the exact procedure or combination of procedures to be employed in a particular case must be determined by the physician in charge of the case.

When a prospective mother finds that she has syphilis early in pregnancy and obtains an apparent cure several months before the expected birth of her baby, she should of course submit to re-tests from time to time to be certain that the cure was genuine and

complete. If later tests reveal a return of the infection, she should by all means resume treatment.

Protection of offspring from the effects of gonorrhea in the mother is accomplished in two ways. The first and most obvious is to treat the mother for the disease prior to the baby's birth, and the second is to protect the baby from infection.

There is no such thing as congenital gonorrhea in the sense that there is congenital syphilis. In other words, the mother who has untreated gonorrhea during her pregnancy does not transmit the disease as such to her child. She does, however, expose it to a serious venereal disease known as ophthalmia neonatorum, which, unless properly treated, produces blindness.

So effective has penicillin proved in the treatment of gonorrhea, in prospective mothers as in others, that it is regarded as the optimum mode of treatment for this condition. A cure is usually a matter of hours, rather than of days or weeks, and the end results have been found to be most satisfactory. As with a supposedly cured case of syphilis, however, anyone who has apparently recovered from gonorrhea during pregnancy should submit to examinations and tests to be sure that the danger has really ceased to exist.

Ophthalmia neonatorum is usually caused by germ-laden vaginal discharges which enter the baby's eyes when the head passes through the birth canal at birth. Fortunately, it was learned about two-thirds of a century ago that the prompt application of a dilute solution of silver nitrate to the baby's eyes offered excellent protection against this condition. Realizing that it would be unsafe to depend upon voluntary use of this preventive, legislative bodies in all parts of the world have passed laws requiring that doctors and midwives must apply this product to the eyes of all babies at whose births they officiate. It goes without saying that this type of legislation has long been in effect in Alabama. Moreover, the State Department of Health furnishes dilute silver nitrate solution, entirely free, through county health departments, to Alabama physicians and midwives. The records of the State Health Department's Bureau of Laboratories show that 53,144 of these free treatments were distributed last year. Some physicians of course obtain their supplies from other sources.

In spite of the fact, mentioned by Dr. Rosenthal, that, "as late as 1936 it was established that more than seven per cent of the admissions to schools for the blind in the United States were due to ophthalmia neonatorum," the virtual elimination of this tragic condition is within the grasp of medical science and the public health agencies. Since, as far as this writer knows, the application of dilute silver nitrate solution to the eyes of newborn babies has been made compulsory by every state, cases of blindness caused by this condition can be the result only of failures to obey the law. These violations are believed to occur mainly, if not entirely, among midwives, who, it must be remembered, are the only attendants at a large percentage of births occurring among Negroes. It should be remembered, too, that Dr. Rosenthal's statement covers conditions prevailing ten years ago. No doubt the percentage he mentioned would be greatly reduced if applied to present-day conditions.

Protection of the youngest generation of Alabamians and Americans against these two dangerous infections—syphilis and ophthalmia neonatorum—calls for eternal vigilance. It also calls for the fullest cooperation by the State's and the nation's prospective parents with the medical profession and the public health agencies.

BUREAU OF LABORATORIES

H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

JUNE 1946

Examinations for diphtheria bacilli and Vincent's	278
Agglutination tests (typhoid, Brill's and undulant fever)	1,178
Typhoid cultures (blood, feces and urine)	1,111
Examinations for malaria	1,135
Examinations for intestinal parasites	2,170
Serologic tests for syphilis (blood and spinal fluid)	43,575
Darkfield examinations	38
Examinations for gonococci	4,686
Examinations for tubercle bacilli	1,661
Examinations for meningococci	6
Examinations for Negri bodies (microscopic)	130
Water examinations	1,295
Milk examinations	2,848
Miscellaneous	742
Total	60,853

BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

CURRENT MORBIDITY STATISTICS
1946

	May	June	E. E.* June
Typhoid	9	12	21
Typhus	28	39	26
Malaria	115	170	412
Smallpox	0	0	1
Measles	900	598	312
Scarlet fever	52	42	29
Whooping cough	72	133	206
Diphtheria	11	17	18
Influenza	83	72	52
Mumps	89	51	91
Poliomyelitis	2	87	8
Encephalitis	2	2	1
Chickenpox	92	44	45
Tetanus	4	5	5
Tuberculosis	381	357	253
Pellagra	4	0	23
Meningitis	11	15	14
Pneumonia	334	301	148
Syphilis	1018	1159	1448
Chancroid	19	19	10
Gonorrhea	1069	1162	466
Trachoma	0	0	0
Tularemia	3	4	0
Undulant fever	6	10	5
Dengue	0	0	0
Amebic dysentery	2	1	0
Cancer	220	255	0
Rabies—Human cases	1	0	0
Positive animal heads	75	63	

As reported by physicians and including deaths not reported as cases.

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

BUREAU OF SANITATION

T. H. Milford, M. S., in S. E., Director

SOME POTENTIAL MILK CONTROL PROBLEMS

Contributed by
F. H. Downs, Jr., B. S.
Principal Sanitarian

The years since 1941 have brought about several changes in milk production and consumption in Alabama of interest to health workers. The daily sales of graded milk more than doubled during this period. However, the production of milk in the peak spring production periods barely met the consumption demands, and in every winter there developed in most cities an acute milk shortage. There has been a definite increase in the use of pasteurized milk, the percentage of milk pasteurized having practically doubled until now it is about 80 per cent for the state as a whole.

New problems of and trends in milk production and distribution during the immediate postwar years are of concern to the health worker. Those arising during the war period included the following: shipment of milk from points outside the state, and increasing shipment of milk from one county where it was produced to another county for distribution, thereby injecting numerous new problems into its supervision; frequent adulteration by addition of water; reconstituting with milk products of low or uncertain quality; lowering of aspired standards by many operators; bootlegging of ungraded milk; and other unusual practices almost as many as the number of milk men. These same problems will probably continue to plague the health department and can only be remedied by increasing the efficiency and effectiveness of inspection and control activities.

Dairy economics should be included in a consideration of potential health problems in milk quality control. During the war milk was one of the cheapest foods available to the public, and still is, following a recent increase in price of one cent a quart. That factor, plus the increased purchasing power of the public, has been the principal reason for the increased sales of milk. If price controls are removed on milk, grains used in dairy feeds, livestock, meat, building materials and dairy equipment, the price of milk will probably spiral upward as costs of production increase. Such a situation will inevitably bring about a decrease in the sales of milk. Also, the production of milk will decrease as more and more dairymen are unable to purchase high-priced dairy feed, and find it more profitable to sell their herds for slaughtering. If production still remains below demands, there will be an increasing incentive to augment the supply by the purchase of milk from distant sources, the use of low-grade supplies for fluid milk, the increased practice of reconstituting low-grade milk products, or the institution of other doubtful practices, either to increase the supply of milk or lower the cost of the supply.

Dairy economics furnishes one of the reasons for the increase in the percentage of milk pasteurized, that is the increased costs in the production, handling and distribution of milk. A great number of dairies discontinued retailing milk during the war because it was more economical and practical to sell the milk wholesale to a pasteurizing plant. In that manner, the shortages and increased costs of experienced labor, milk handling equipment, rubber, gasoline and delivery vehicles, incidental to retailing,

were circumvented. This large and rapid change in dairy practice increased, in a majority of instances, the volume of milk handled by the pasteurizing plants beyond their capacity. The labor problem has been eased some by the return of ex-service men who have had previous milk plant experience. However, the shortage and increasingly higher costs of building materials and milk plant equipment will tend to delay the expansion of overcrowded milk plants, and the quality of pasteurized milk may continue to be substandard. One authority estimates that deliveries of dairy equipment are running about 12 months behind schedule. He is of the opinion, however, that the industry is at present producing about 150 per cent more milk equipment than it was in 1941, and by the year's end should be turning out twice its 1941 production.

Another serious problem confronting health departments has been the recurrence of Brucellosis, commonly known as Bang's disease or contagious abortion, in dairy herds that had been freed of this disease. Several such previously clean herds tested in recent months have been found to have as high as 90 per cent infection. The milk from these herds was being sold in the raw state in small towns in which there were no pasteurizing plants. The public, as well as the health departments, became alarmed over the possibility of human infection if sale of this milk in the raw state was continued or permitted. Removal of such large numbers of infected animals would materially reduce the milk supply of the communities concerned. The most practical alternative was to keep the dairy herds intact and to require pasteurization of all the milk from such dairies. The delays incidental to obtaining or constructing suitable buildings and securing pasteurization equipment have created the problem of making the use of the potentially dangerous milk safe by boiling or home pasteurization. Other expedients have been the substitution of canned milk for fresh milk and/or the procurement of pasteurized supplies from cities when surpluses exist.

We should recognize the fact that wartime deterioration of milk quality persists in this present period of reconversion. Also, we must realize that the problems arising from shortages and scarcities, as well as many new ones, will be confronting us for many months. Every effort should be made to improve methods and practices at the dairies and milk plants and, just as soon as possible, to secure necessary building expansions and equipment. Pasteurization of milk should be encouraged because of its added safety.

Respiratory Emergencies—A common condition is edema of the glottis. This may occur suddenly in infants and children with a history of previous sensitivity and when the offending antigen ingested is tomatoes, strawberries, and so on. It may occur after local applications of drugs to the throat, in cocainization, etc. It more commonly occurs after some acute infection in the throat. Usually the child complains of a sore throat for some time. In some instances he will start to have respiratory difficulty, difficulty which, though extraordinarily severe, is practically always present on inspiration. Only occasionally it may extend down into the larynx causing edema there (especially with influenzal infections) with trouble in expiration also. The attempt to inhale air will be distressing and there is sinking of the chest wall and the use of all the accessory muscles, and so on. There may be no cyanosis at first, but later with the completeness of the edema and the totality of the obstruction there is air hunger with cyanosis. In most instances, there is no cyanosis but merely aggravated difficult inspiration, and medical means should be employed before any operative interference is employed. When a Whitehead gag is put in the mouth the edematous glottis can easily be palpated and when the finger brings the edematous glottis forward, air exchange becomes easy. In a condition like this there is only one thing to do if the situation has become an emergency and that is to do a low tracheotomy. Before doing a tracheotomy, however, it must be remembered that a tracheotomy may possibly be avoided by giving morphine, by steam inhalations, and so on. If a tracheotomy has to be done, the wound must not be sutured around the tube to make a nice neat job. The wound should be left wide open to avoid air getting into the mediastinum. It makes no difference whether air bubbles in or out.

Under the laryngeal conditions are included a number of entities which have separate origins but which create the same type of mechanical respiratory obstruction. Usually, papillomas are not recognized, although from the history and the hoarse voice, one may suspect some pathologic condition, such as polyp, hemangioma, or cyst. Anyone with a hoarse voice who coughs blood out of the larynx in the absence of other indications of disease should be investigated immediately. A diphtheritic membrane is an obstructive agent but the obstruction is more gradual in onset and the obstructing membrane can be seen and felt, and it obstructs both on inspiration and expiration.—*Toomey, South. M. J., Aug.* '46.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES, APRIL 1946, AND COMPARATIVE RATES FOR 1946, 1945 AND 1944

Births, Stillbirths, and Causes of Death	Number Registered—During April 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births, exclusive of stillbirths	5032	**	**	21.2	24.5	24.1
Stillbirths	197	**	**	37.7	30.6	33.5
Deaths, exclusive of stillbirths	1983	1180	803	8.3	8.1	9.5
Infant deaths:						
Under one year	226	128	98	44.9	43.1	49.5
Under one month	153	97	56	30.4	30.4	29.0
Typhoid and paratyphoid 1, 2					0.4	0.4
Epidemic cerebrospinal meningitis 6	2	1	1	0.8	2.1	4.4
Scarlet fever 8						
Whooping cough 9	1		1	0.4	2.9	2.2
Diphtheria 10					0.4	0.4
Tuberculosis, all forms 13-22	100	42	58	42.0	41.6	51.6
Malaria 28	4	1	3	1.7		0.9
Syphilis 30	27	8	19	11.4	9.7	15.3
Influenza 33	31	15	16	13.0	15.6	17.9
Measles 35	16	11	5	6.7	0.4	9.6
Poliomyelitis 36	1		1	0.4	0.8	
Encephalitis 37						0.4
Typhus fever 39	2	2		0.8	0.8	0.4
Cancer, all forms 45-55	180	124	56	75.7	67.7	74.8
Diabetes mellitus 61	24	16	8	10.1	10.9	11.4
Pellagra 69	9	6	3	3.8	2.9	3.9
Alcoholism 77	1	1		0.4	0.4	2.2
Intracranial lesions 83	189	93	96	79.5	86.2	88.0
Diseases of the heart 90-95	427	277	150	179.5	171.5	188.2
Diseases of the arteries 96-99	21	16	5	8.8	6.3	9.6
Bronchitis 106	5	3	2	2.1	1.3	
Pneumonia, all forms 107-109	99	56	43	41.6	30.3	53.4
Diarrhea and enteritis (under 2) 119	12	6	6	5.0	4.6	3.1
Diarrhea and enteritis (2 and over) 120	2	1	1	0.8		3.1
Appendicitis 121	11	6	5	4.6	6.3	6.6
Hernia, intestinal obstruction 122	19	9	10	8.0	4.6	5.2
Cirrhosis of the liver 124	15	10	5	6.3	3.4	5.2
Nephritis, all forms 130-132	146	89	57	61.4	66.4	71.8
Puerperal causes 140-150	13	7	6	24.9	28.3	40.4
Puerperal septicemia 140, 142a, 147	6	3	3	11.5	6.7	14.1
Suicide 163-164	18	15	3	7.6	5.9	3.5
Homicide 165-168	29	9	20	12.2	11.8	9.6
Accidental deaths, exclusive of motor vehicle 169, 171-195	99	67	32	41.6	34.9	62.6
Motor vehicle, 170	40	33	7	16.8	13.9	15.8
All other known causes	295	198	97	124.0	129.1	139.6
Ill-defined and unknown causes, 199-200	145	58	87	61.0	74.0	78.8

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births; deaths from specific causes per 100,000 population; deaths from puerperal causes per 10,000 total births. All rates are based upon the April report of the years specified.

**Not available.

Public Health—I contend that a good public health program—a good health department—state and county, is a credit to the medical profession. I believe further that a poor one is a reflection on the medical profession. While a poor health department does not reflect to the discredit of your training or professional ability or on your interest in your patients, it does reflect on your public spiritedness. The people of a city, county or state look naturally to the medical profession for leadership in all medical fields, including public health. If such leadership is poor, or lacking, or even worse, if it is pitted against a public health program, the average layman concludes that the physicians are only interested in themselves and their private income, that their thinking is not projected outside of their office doors and that any leadership in the field of community health must come from laymen.

Now some of you may say, "Why should we support a public health program? What good is it? Isn't it a fifth column in our midst and doesn't it take our practices away? What is public health anyway?" I have never looked up the term in the dictionary, but I will give you my idea about the matter. Public health is a specialty of medicine. Its aim is to promote better community health. It is interested in individuals only when their health affects the health of others. It does not conflict with the private practice of medicine. It supplements it. The practitioner in private practice, for instance, is in no better position to cope with the myriad of public health problems of vital concern to the health of a community than a dermatologist is able to care for a brain tumor. Let us take a few examples: Typhus fever is a disease that has been on the increase in the state for the last ten years. Almost any physician can treat it, but the physician in private practice is helpless as far as controlling an epidemic of this disease is concerned. He has to rely on community action—a rat control program—which is carried on by most health departments. The practitioner in private practice, neither singly nor collectively, can be expected to stop a typhoid epidemic or an epidemic of malaria. He may possess the necessary technical knowledge, but the remedies required demand community action. Dairies must be inspected, water supplies checked and carriers traced. In the case of malaria the anopheles mosquito must be controlled.

Tuberculosis and venereal diseases are treated by physicians in private practice, and these practitioners can make a great contribution to community health by inquiring into possible sources of infection of the patient and also into the possibilities of his having infected others. What physician, however, in private practice is equipped to see that persons possibly infected are examined and treated if they do not present themselves voluntarily at his office? Persons with such a communicable disease who do not suspect it, those knowing of its presence but unwilling to seek treatment, those who are recalcitrant about continuing treatment, those who do not have funds to pay for treatment, and those having the funds but unable to find a physician willing to treat them need the services of a health department.—*Sowder, J. Florida M. A., August* '46.

BOOK ABSTRACTS AND REVIEWS

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1945. Cloth. Price, postpaid, $1.00. Pp. 122. Chicago: American Medical Association, 1946.

Originally intended chiefly as a repository of its reports on rejection of preparations found unacceptable for inclusion in New and Nonofficial Remedies or of status reports on products whose therapeutic value has not yet been established, this volume in recent years has been composed mainly of reports giving general information to the physician on the status of various therapeutic agents and therapeutic procedures. Most of these reports have previously been published in The Journal of the American Medical Association. The reports in the present volume emphasize the educational nature of the Council's work and bear witness to its leadership in the consideration of current therapeutic problems.

The report "Dermatophytosis: Treatment and Prophylaxis" gives a concise estimate of progress in this field and sets up useful standards for the evaluation of fungicidal preparations. The report on "Dangers from the External Use of Sulfonamides" obviously stems from wartime experience with these preparations and issues a warning against over-the-counter sales. The report "Status of Poison Ivy Extracts" emphasizes the fact that these preparations are to be used in prevention rather than treatment. The report on Acne Bacillus Vaccine points out that this preparation, in the opinion of most investigators, fails in most cases clinically to arrest or control acne vulgaris. In the report "The Status of Passive Immunization and Treatment in Pertussis by the Use of Human Hyperimmune Serum" prepared by Dr. Harriet M. Felton and sponsored by the Council, the status of these preparations was definitely outlined just prior to the acceptance by the Council of a number of commercial preparations.

This volume, as well as preceding Annual Reprints, are of interest not only to physicians but also to pharmacists, chemists and pharmaceutical manufacturers, in fact to all who are interested in the progres of drug therapy.

A. M. A.

New and Nonofficial Remedies, 1946. Containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1946. Cloth. Price, postpaid, $1.50. Pp. 770. Chicago: American Medical Association, 1946.

New and Nonofficial Remedies is the book in which are listed and described the medicinal preparations which the Council on Pharmacy and Chemistry has found acceptable, under its rules, for the use of physicians. To have a product accepted, the manufacturer must declare its composition, give adequate proof of its therapeutic value and market it with claims which have been found valid by the Council. The present volume represents a cumulative epitome of the Council's work since its foundation in 1905.

Accepted preparations are grouped in twenty-four classifications ranging from allergenic preparations to vitamins. Ordinarily, an inclusive general article precedes the description of the various products. The monograph for the products sets forth the actions, uses and dosage and usually a set of tests and standards. As its name implies, the book is intended to describe nonofficial preparations, that is preparations which are not included in such official publications as the Pharmacopeia and the National Formulary. However, some official articles are listed and described, these being in general those for which the Council feels the practicing physician needs concise and authoritative information. In the preface of the present volume, the Council lists some thirty-five official drugs ranging from acetylsalicylic acid to strophanthin, which the Council feels it no longer necessary to consider for inclusion in the book. However, in most cases, a brief monograph on actions, uses and dosage gives information useful to the physician and for the control and advertising of marketed preparations.

Examination of the volume reveals that there have been no extensive or radical revisions of the general articles representing the twenty-four chapter heads under which preparations are classified. A few revisions of separate monographs may be mentioned: under chaulmoogra derivatives, the recommended use of chaulmoogra oil is limited to sarcoidosis; the dosage statement for quinacrine hydrochloride has been notably expanded to reflect the wartime experience with the drug. The radically revised monograph on amphetamine is in harmony with the recent Council report on the use of this drug. Minor revisions of the chapter on contraceptives are noted, and one marks the appearance of many additional products. The monograph on the vitamin B complex now mentions synthetic folic acid, recently made available for investigational use; but no accepted preparations are listed.

There appear to be no spectacularly new accepted preparations. Perhaps the most noteworthy is the casein hydrolysate, Amigen, acceptance of which will no doubt be followed by that of many more preparations representing the field of amino acid therapy.

A. M. A.

"Infection with tuberculosis may be compared to the action of an incendiary bomb. It may come to rest in any isolated area of the body and then may quickly be dispersed to other areas, like the bomb fragments causing incendiary fires."

AMERICAN MEDICAL ASSOCIATION NEWS

GREATEST POSTGRADUATE COURSE IN MEDICINE IS A. M. A. SESSION

In reviewing a year of medical progress, Morris Fishbein, M. D., says that the recent 95th annual convention of the American Medical Association in San Francisco was "the greatest one-week postgraduate course in medicine available anywhere."

Writing in the current issue of Hygeia, the health magazine of the American Medical Association, Dr. Fishbein says in part:

Whenever a great discovery is made in any field of science, investigators try immediately to find out whether or not it is applicable in any way for the improvement of health. Thus the studies that led toward the development of the atomic bomb turned the attention of medical investigators toward the possibilities of atomic energy and radioactivity. As a result, it was found possible to make elements radioactive. These elements are then injected into the human body. They are carried by the blood directly to certain organs which seem to have a special affinity for those elements. The radioactivity goes along and acts on the cells of the organs concerned. These substances are called radioactive isotopes. Now radioactive iodine is being used to treat excessive action of the thyroid gland, radioactive phosphorus for excessive numbers of white blood cells and red blood cells, and other radioactive elements to attack growths in various organs of the body. Furthermore, instruments have been developed which can trace the passage of these isotopes through the body so that it becomes possible to determine the time of circulation and whether or not there are any impediments to free circulation of the blood.

The work on blood and its derivatives, which has been considered one of the greatest medical developments of the war, has led now to the possibility that substances may be found in the blood capable of controlling hemophilia, the hereditary bleeding disease that caused the deaths of the heirs to the thrones of Russia and Spain. Other derivatives of the blood are being used to overcome loss of protein through the kidney in nephrosis and to prepare patients suitably for operation and to improve their nutrition after operation.

During the war thousands of preparations were tested as to their effects on malaria. Out of these studies have come several new preparations which are believed to be more effective in malaria than any heretofore known. During the war these discoveries were closely guarded because malaria could incapacitate an entire army and thus the disease was of great strategic importance. Now these discoveries will be applied to help clear many sections of the earth of this dread disease, making them fertile and inhabitable. Associated with the use of these new malaria remedies will be use of DDT for destroying the mosquitoes that carry malaria.

Attention was paid also to a new vitamin factor called folic acid, which has been found equivalent in many ways to liver extract for stimulating the development of red blood cells in cases of pernicious anemia. Physicians from various parts of the country have tested this new preparation with great satisfaction.

The new remedy used in the treatment of epilepsy and other convulsive disorders, tridione, was discussed by several doctors. The drug has apparently useful activity for relieving pain as well as controlling convulsive seizures. Tridione seems to be specifically of value for the type of epilepsy called petit mal but in combination with other drugs it seems to be able also to reduce other forms of seizure affecting the brain and the motor activities of the body. The drug seems to be of less value in the severe form of epilepsy called grand mal.

The experiments with war gases led to the discovery of an antiarsenical substance commonly called British antilewisite or BAL. This substance is valuable in treating poisoning by arsenic, mercury and other metals, and also in overcoming serious reactions when arsenic is used in the treatment of syphilis. Drugs like arsphenamine (formerly called salvarsan or 606) and mapharsen depend on arsenic for their activity against the spirochetes.

Derivatives of mustard gas have been found effective in lowering the total number of white blood cells in cases of Hodgkin's disease and leukemia. These derivatives are in an exceedingly early experimental stage but the effects already established indicate possibilities of ultimate control of these heretofore almost invariably fatal diseases.

Significant also were reports on the use of the substance called curare, a derivative of the South American snake poison, in the control of spastic disorders. This drug, used in proper amounts, relaxes muscle spasms. It has, therefore, been used in the treatment of infantile paralysis. More important probably is the use of the drug as a relaxing agent before giving anesthesia with one of the gases like ether or ethylene or cyclopropane. The use of such a relaxing substance makes possible the use of less of the anesthetic agent than would otherwise have been required. Specialists in anesthesia are now studying the effects of this substance on the tissues of the body generally so as to determine its maximum uses and any possible dangers that may be associated with its use.

DOCTORS REPORT TWO CASES OF RARE DISEASE CARRIED BY RATS

A new complication of a heretofore rare rat-borne disease, the first of its kind to be recognized in the United States, is reported in the August 17 issue of The Journal of the American Medical Association by three Rochester, N. Y., physicians.

They state that they treated two patients suffering from a kidney infection caused by leptospiral organisms which are carried by rats. This infection usually affects the liver.

The authors—W. W. Stiles, M. D., J. D. Goldstein, M. D., and W. S. McCann, M. D., from the Departments of Bacteriology and Medicine of the University of Rochester School of Medicine and Dentistry—state that "instances of this 'pure' renal form of leptospirosis are fairly common abroad, but prior to this report no cases have been recognized in the United States. The two patients observed in Rochester are the first confirmed instances of anicteric leptospiral nephritis to be reported in this country."

The first patient was a schoolboy, aged 17, who had symptoms of vomiting, diarrhea, headache, severe backache and a temperature of 103 F. He had been swimming almost daily in the Erie Barge Canal near Pittsford, N. Y., and although the canal was known to be infested with rats he was not aware of any direct contact with the rodents. He was aware that water had entered the upper respiratory passages on several occasions. He was discharged from the hospital on the 19th day after the onset of his illness and remained in bed at home for an additional five weeks. The patient was treated with a high protein, salt free diet, and given a large amount of fluids.

The second patient was a dairy worker with the same general symptoms. The article points out that "for the past several years the patient had worked in a milk pasteurizing plant in Pittsford, N. Y. He said that rats were frequently seen about the plant and that approximately three weeks before this illness one of them had become caught in the mechanism of a bottle washer, and its macerated tissues had been thrown about and over him." Fever persisted until the 16th day of illness in this patient. He remained in bed two weeks at home after discharge from the hospital.

The infection was discovered in both instances after a total of 60 guinea pigs were used in testing the bloods of the patients. The guinea pigs are very susceptible to leptospira.

TULAREMIA, RABBIT-BORNE DISEASE, TRANSMITTED BY PHEASANT

Tularemia, usually caused by contact with rabbits, was acquired by a patient after eating pheasant, according to two doctors writing in the August 31 issue of The Journal of the American Medical Association.

N. J. Kursban, M. D., and Lee Foshay, M. D., from the Department of Medicine, the Jewish Hospital, and the Department of Bacteriology, University of Cincinnati College of Medicine, and the Cincinnati General Hospital, state that the only other known instance of transmission from the pheasant was reported in 1936.

A person suffering from tularemia develops swellings of the skin with the formation of abscesses, swelling of the lymph glands and small spots of infection in the internal organs.

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BACKGROUND

OVER THREE DECADES OF CLINICAL EXPERIENCE

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EARLY DIAGNOSIS OF BRAIN TUMORS

WALTER G. HAYNES, M. D., F. A. C. S.
Birmingham, Alabama

It is clear that it will be impossible to cover the mass of material and information available as to the diagnosis of brain tumors. The only excuse for presenting this short guide is that enough practical, sensible points may be retained to avert the disaster of making the diagnosis of brain tumor only after the patient becomes comatose.

Since I have presumed to enter a plea for the early diagnosis of brain tumor, it must be predicated that such patients will have adequate handling and that the eventual surgical end result will be satisfactory. We must also preclude a low operative mortality rate.

This is best presented by a brief history of neurosurgery, which begins back in 1883 when Sir Victor Horsley consummated his now famous ten intracranial operations. It is true that most of those ten patients died. However, it is also true that his courage and daring allowed us who follow him to diagnose and treat equivalent brain tumors and intracranial conditions with a low mortality rate. Following Horsley's venture into this hazardous field, Dr. Harvey Cushing in 1901 began his life's work of study, classification and treatment of brain tumors. His lifetime spans the development of the specialty of neurologic surgery, and most of the advances in technique and surgical adjuncts connected with this development are directly attributable to Dr. Cushing. He and his colleagues and his students have developed such things as lighted brain retractors, constant suction, electrocautery, silver clips and now fibrin foam. The advent of penicillin and sulfonamide therapy has added another forward step. Dr. Gilbert Horrax of the Lahey Clinic recently published a statistical analysis of the end results of some 400 brain tumors. He arrived at the conclusion that from sixty to seventy per cent of all patients with brain tumors could be made socially useful and practically cured so that they live painless, comfortable and competent lives. A smaller percentage, forty to fifty per cent, was permanently cured with no residual handicap whatsoever. It is clear, therefore, that the field of neurologic surgery does have much to offer and that, barring the malignancy and the inaccessibility of a glioma, we can offer a good chance for recovery and future social usefulness.

Every neurologic surgeon has the unfortunate experience to find that most of his early brain tumors are coming to him in coma and only as a last resort. It can, therefore, be readily analyzed that the neurosurgeon's first year mortality rate will be markedly higher than his second year's mortality rate. This is explained by the fact that most of the patients with tumors enter the hospital in coma, dehydrated, in convulsions and with already beginning cerebral decompensation. In contrast to this gloomy outlook, we find those patients whose tumors have been diagnosed early are still in good general physical condition. They are well hydrated and their cardiovascular system is in good shape. They are alert, responsive and mentally oriented. Such a patient obviously has a much better surgical prognosis

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than a patient in the opposite extreme. It is, therefore, superfluous to prove that we will have a much lower operative mortality rate and a much higher percentage of cures in patients who come to us still in fairly good condition.

SYMPTOMATOLOGY

I will attempt here only to outline the more common, practical points in neurologic diagnosis which will enable us to make an earlier diagnosis of a space-occupying intracranial lesion. The *age* and *sex* of an individual have very little bearing upon the diagnosis as to the presence of the tumor, although they do have considerable bearing as to the type and location of a tumor. For example, a brain tumor in an infant or child is usually in the posterior fossa and such a tumor has an equal chance of being in the midline of the cerebellum, usually a medulloblastoma, one of our more malignant tumors. There is an equal chance of it being in the lateral hemispheres of the cerebellum, usually an astrocytoma, a very favorable, utterly benign tumor which we can permanently cure. Aside from such type and location diagnoses, however, age and sex have very little influence upon tumors since tumors may occur in the newborn and again in the octogenarian.

The effect of *trauma* upon the pathogenesis of brain tumors has been a controversial one. Dr. Cushing felt that trauma did contribute to the formation of meningiomata. However, this has been disputed and there is no definite commitment amongst the neurosurgeons of the world.

The classical triad of symptoms pointing toward a brain tumor are those symptoms which can be found in any textbook on general medicine. They are the ones that the medical students learn and, if followed, will allow a diagnosis of brain tumor to be made. However, they are frequently lacking so that they are not sufficient for the diagnosis of an intracranial neoplasm. I speak of the symptoms of *headache*, usually of the early morning variety, and of a dull, throbbing, intense type, distributed, with no sense of localization, from the occiput to the frontal region and over both temples. *Vomiting* is usually described as being projectile, but this is an ancient classification and is of no practical significance. Vomiting does associate itself with headaches in a brain tumor and it may be severe. It is due, of course, to increased intracranial pressure, as is the headache. The remaining symptom of the classical triad is that of a *choked disc*, or *papilledema*, which is only another accompaniment of generalized increased intracranial pressure.

This history is of paramount importance. We are all familiar with various types of histories if they are graphically charted. We know that a cerebrovascular accident shows a sudden spike, representing the sudden onset of the apoplectic accident. We are also familiar with the graphic visualization of the history of a progressive degenerative disease of the nervous system, wherein there is a gradual increase in the symptomatology. Such conditions as pernicious anemia or multiple sclerosis, however, are subject to remissions and exacerbations, and their chart assumes a sine wave in that it first goes up and then down. A brain tumor, however, portrays the usual graphic demonstration of a gradually progressive lesion which is slowly growing, occupying space, and pressing upon contingent neural structures. Such a history can hardly be mistaken for that of a vascular accident. It must be remembered, however, that a vascular accident may usher in the symptomatology of a brain tumor in a large percentage, almost 20%, of all cases of brain tumor. This is explained by a hemorrhage into its substance, and thus the entire chain of events may be initiated by a supposed vascular accident.

One of the most common and constant symptoms of a brain tumor is that of *visual disturbance*. This may be expressed as a rapidly or slowly failing visual acuity, or merely as a blurring of vision. However, some intelligent patients describe a diplopia or a scotomata, or even formed visual images. Diplopia, of course, may be due to nerve imbalance wherein one may have a unilateral sixth, third or fourth nerve paralysis resulting in a strabismus and consequent diplopia. Formed visual images may represent lesions of the occipital or temporal lobes, and scotomata may indicate the beginning of a hemianopsia. Blindness, in the case of a brain tumor, would be the result of an extreme degree of papilledema, with secondary optic atrophy setting in, consequent scarring of the nerve head and permanent

blindness. This is the end result of all choked discs unless the pressure is relieved.

One of the more popular symptoms of a brain tumor is that of *mental change.* As a matter of fact, this is a relatively rare phenomenon and is seen only in frontal and temporal lobe tumors. We do see, however, an obtunding of the cerebral processes in any case of increased intracranial pressure. At any rate, there may be no mental change associated with the presence of a tumor, or the mental changes may be gradually progressive. The clear-cut picture of loss of inhibitions, facetiousness, untidiness and personality change which is seen in frontal lobe tumors is familiar to most of us.

Sphincter difficulties are a fairly common accompaniment of a brain tumor, but are usually found in those cases where the tumor occupies the frontal lobe.

Paralysis is a noteworthy symptom of a brain tumor. However, the paralysis occurs only in those areas wherein the pyramidal or extrapyramidal fibers are located, so that one may have a very large brain tumor with no paralysis at all. However, the progressive weakness and finally paralysis of one side or the other, or a foot or an arm, should point irrevocably to the presence of an intracranial neoplasm. It is obvious that a tumor occupying the precentral gyrus or any of the fibers throughout the internal capsule through the midbrain and into the pons and medulla will cause a paralysis. The history should be suitable, however, and should not be confused with the sudden onset of a paralysis due to a cerebrovascular accident.

Anesthesia must be anatomical but its progression points to the presence of a tumor. Any lesion, beginning with the postcentral cortex and extending through the thalamus and the midbrain which might impinge upon the spinothalamic tract, will cause a resultant anesthesia in the contralateral extremities.

Convulsions constitute one of the most important and most diagnostic symptoms. Generalized convulsions in the child or young adult may or may not point toward a brain tumor. However, any individual over thirty years of age who begins to have convulsions, either generalized or Jacksonian, must be considered to have a brain tumor unless proven otherwise. Probably the most common complaint, sign or symptom which heralds the advent of a new growth in the cerebrum is that of convulsive disease. A good example of such a condition and of a typical brain tumor history is that of an individual who notices that he is dragging his left foot. He begins to have a few headaches, his left leg then becomes weak, and finally he awakens to find that he has had a Jacksonian convulsion which began with the left toes and foot, extended up the leg to include the arm and the face, and then became generalized. This is the obvious story of a right parasagittal tumor which, in most cases, is a meningioma. Convulsions, therefore, should be carefully noted and described since any focal attack will indicate the exact position of the neoplasm. It should also be remembered that convulsions can only occur in supratentorial lesions, although decerebrate fits or extensor spasms may occur in the posterior fossa. It should be reiterated, therefore, that convulsions are a most important sign and symptom of the beginning of a brain tumor, and that any individual with convulsions who is over the age of thirty must be considered to have a brain tumor unless proven otherwise.

There is no space for an exact or laborious definition or delineation of *speech difficulties,* such as aphasia, in such a paper as this. However, motor speech or the ability to express the spoken word is peculiar of a small area in the brain, and under the control of that area, called Broca's area, which is in the third frontal convolution of the left side in right-handed individuals from right-handed stock. A gradually progressive jargon aphasia, progressing to a nominal aphasia and finally to a complete inability to express desires and sentiments should be indicative of either a left frontal lobe tumor or a left temporal lobe tumor. Such conditions are rarely clear-cut and may be intermixed with alexia, or word-blindness, indicative of the supramarginal gyrus just above the temporal lobe on the left side; or agnosia and apraxia or inability to perform simple commands or recognize simple well known objects. These symptoms also point to the supramarginal gyrus.

Astereognosis is one of our most reliable of symptoms and points to an involvement of the postcentral gyrus of the parietal lobe. However, astereognosis must be completely evaluated since a paralyzed hand or an an-

esthetic hand may appear to be astereognotic when actually it is not. We must, therefore, predicate an inability to recognize familiar objects by feel in the hand that is neither paralyzed nor anesthetic. This constitutes a direct incrimination of the postcentral gyrus of the parietal lobe.

Lethargy, increasing drowsiness, *somnolence* and eventually *coma* is the usual chain of consciousness which ends in death. These are the steps which are responsible to progressive generalized increased intracranial pressure. It is our hope that the condition will be recognized as such prior to the somnolence period.

Uncinate fits are sudden attacks, corresponding to an epileptiform seizure, of peculiar and usually disagreeable odors or tastes which come on suddenly, last only a few seconds and as suddenly disappear. The patient cannot, usually, identify the smell or taste. They are caused by involvement of the uncinate or hippocampal gyrus at the base of the temporal lobe on either side, and are usually indicative of a glioma in that region.

Dreamy states are states of detachment from reality wherein the patient seems to exist in a dream or a haze and objectively surveys, with no passion, his surroundings and circumstances. They are usually well described by the patient. Such a dreamy state involves either temporal lobe.

Anosmia is a symptom which has been largely ignored but is of extreme importance in corroborating a suspicion of involvement of the base of the frontal lobes on either side. Anosmia, or inability to recognize test smell objects, should be tested bilaterally since the loss of smell on both sides may be attributed to an atrophic rhinitis while the loss of smell on only one side may be neurologically incriminating.

The *Foster-Kennedy syndrome* is a fairly well known symptom complex which points to an olfactory groove tumor. It has been described as an anosmia on one side, associated with an optic atrophy on the same side and a choked disc on the opposite side, and mental changes as the tumor grows to involve the frontal lobe. Such tumors are usually meningiomas, benign, and are removable.

Hemianopsia is a visual disturbance and is a peripheral manifestation of a lesion of the optic tract somewhere between the retina, through the chiasm, through the optic radiations into the visual cortex at the calcarine fissure of the occipital lobe, on either side. We are, of course, all familiar with the partial crossing of the optic tracts at the chiasm and the fact that lesions may be well localized by the different types of hemianopsia which may be manifested. Accordingly, a prechiasmal and retrobulbar lesion will give complete blindness in one eye. A lesion in the center of the optic chiasm, such as a pituitary adenoma or a suprasellar meningioma, will gave a bitemporal hemianopsia since it involves the crossed optic tracts. A lesion behind the chiasm in the temporal lobe will give a homonymous hemianopsia so that the temporal field on one side and the nasal field on the opposite side will be involved. If the third nerve reflex to light and accommodation is absent, the lesion can be assumed to be anterior to the Edinger-Westphal nucleus in the midbrain, which is just retrochiasmal. A temporal lobe defect will affect the optic radiation to give a quadrantic defect which is still homonymous. An occipital lobe lesion, in the vicinity of the visual cortex, will interrupt the optic radiation to give us an almost complete homonymous hemianopsia of one side or the other, but the macular, or central vision, is spared since it has bilateral representation. Therefore, anatomic and physiologic loss of visual fields will accurately localize a lesion, such as a brain tumor, somewhere between the retina and the calcarine fissure of the occipital lobe. These are of vital importance and can be tested grossly by finger motions. During the more exact tests in a hospital workup we do accurate visual fields with small measured test objects on a tangent screen.

There is a frequently recurring symptom complex of the cerebellopontine angle which should be clearly defined. The most common tumor of the cerebellopontine angle is that of an acoustic neurinoma which arises from the vestibular portion of the eighth nerve. Consequently, the patient first complains of *tinnitus* which progresses to deafness on the ipsolateral side. The next complaint is that of *vertigo*, which is not paroxysmal, but which is fairly constant. The patient may become ataxic at this point, not only because of involvement of the vestibular nerve, but also because of direct pres-

sure on the cerebellum. After the eighth nerve is involved, the next cranial nerve to be involved is the fifth, since the tumor by direct pressure compresses the descending spinal tract of the fifth nerve. This abolishes the *corneal reflex* on the same side long before it incriminates the seventh nerve and certainly long before the sixth nerve is involved. By this time, however, the patient usually shows signs of *pressure* and may have headaches, vomiting and a choked disc. However, in the cerebellopontine angle there is considerable room so that a tumor there causes a choked disc very late. It is also noteworthy that such a tumor may cause the patient to expire suddenly, so that if the condition is suspected, it is advised that the patient be immediately operated open. A cerebellopontine angle tumor, usually an acoustic neurinoma, is a benign lesion and the patient's life may be spared and a permanent cure effected.

In the posterior fossa, or cerebellum, ataxia or asynergy or incoordination is the main symptom. This may be manifested in many ways. Dr. Bailey has classified the cerebellum into three components: the archicerebellum, housing the midline structures; the paleocerebellum, just adjacent to the middle on either side and the neocerebellum which developed with the mammals, particularly in man, into the large, lateral hemispheres which control coordinated movement of the extremities. Therefore we can diagnose, for all practical purposes, a midline cerebellar tumor by the fact that there is a marked trunk ataxia. The Romberg sign is positive, but there is no adiadochokinesis or past pointing. There is only nystagmus, positive Romberg, trunk ataxia and choked disc. This, in a young individual, means a midline cerebellar tumor, the usual type of which is a medulloblastoma, a very malignant tumor. However, the hemisphere picture or the neocerebellar picture is the more benevolent one. Either the patient exhibits incoordination of the extremities with awkwardness or past pointing. A positive Romberg and nystagmus may or may not be present. The choked disc usually becomes evident. This points to a hemisphere picture, the usual type of tumor being either a astrocytoma or a hemangioblastoma, depending upon the age group. These tumors are benign, removable, and curable.

LOCATION

A short description of the classical location of tumors may be of some benefit. Dr. Cushing, his colleagues and his students have outlined such classical locations, and our entire neurosurgical lore is built upon the classical location of a tumor and the usual type of tumor which occupies this location. We know that the clinical history of such a tumor is contingent upon the type of cell represented in such a tumor. Therefore, we can predicate the prognosis, the removability, and the eventual curability of a tumor by knowing its location and the age group of the patient, as well as its clinical history.

The *olfactory groove* is a favorite site for the arising of a meningioma. This usually occurs in middle age or elderly individuals, is a benign tumor, sometimes acquires a huge size, but is a most satisfactory tumor surgically.

The *chiasmal region* is subject to tumors of the sella turcica. This may be a chromophil adenoma of the pituitary gland. This type of tumor results in gigantism in children and acromegaly in adults. A chromophobe adenoma of the pituitary gland usually occurs in middle age, usually in females, who show no endocrine disturbance, but who do complain of headaches, failing vision, with a bitemporal hemianopsia and an optic atrophy. An x-ray shows the enlarged sella turcica and the diagnosis of a chromophobe adenoma is the obvious sequence. A basophilic adenoma, or Cushing's syndrome, is a non-surgical collection of basophilic cells which has lately become known as a pluriglandular syndrome associated with an hypertrophy of cells in the adrenal cortex and various other endocrine glands. A suprasellar tumor may be either a meningioma in the case of a middle aged individual or a suprasellar cyst, or a Rathke's pouch cyst, in a younger person. This occurs just above the sella turcica but may give the typical bitemporal hemianopsia and optic atrophy which is associated with chiasmal lesions. The x-rays may show calcification above the sella turcica. Such cranio-pharyngiomas are removed with difficulty, but meningiomas give a good prognosis.

Parasagittal tumors are usually meningiomas and may arise over the convexity attached to the sagittal sinus or the falx anywhere between the anterior pole and the torcular. They arise with more frequency, however, attached to the sinus and the falx just at the Rolandic fissure. They are more commonly meningiomas and occur in middle years of life. Their symptom complex is fairly clear-cut and has been described. *Tumors of the convexity* are probably the most common of all tumors. They may occur anywhere over the cortex, and their position is suspected only because of the neurologic deficit contingent upon the structures depressed or destroyed. Convexity tumors are usually benign and may be made up of meningiomatous cells or various other slow growing lesions.

Intraventricular tumors are best diagnosed by air studies and are rarely recognized clinically. They consist of three fairly common types, the colloid cyst being the most notorious. This is a ball valve type of a tumor so that the symptoms may be accentuated at times. During one of these attacks, however, the patient may expire. The other common type of tumor in the ventricles is a papilloma of the choroid plexus. This type of tumor may also act as a ball valve. Both tumors are benign. The other more rare tumor of the ventricular system is that of a meningioma which arises from the tela choroidea. They may attain a huge size but are benign and removable and give a good prognosis. Ependymomas arise from the lining of the ventricles and are benign, although difficult to remove.

The *subcortical tumors,* or gliomas, are all potentially malignant. However, there are varying degrees of malignancy so that we can assume that in some of the more slow growing, non-infiltrating types of tumor that a relative cure can be effected over a period of years. These tumors may assume any location under the cortex and, in the case of the more malignant tumors, such as the glioblastoma, grow by invasion and infiltration so that a cure is impossible. However, in such tumors as a slow growing astrocytoma or even an astroblastoma or an oligodendroglioma the nerve fibers and the brain cells are pushed aside so that, upon removal, the structures can once more resume their function. Complete removal of such a slow growing tumor as an astrocytoma or an oligodendroglioma is often possible and the patient can be given a fairly normal span of life. They do recur, however, particularly the tumors made up of the more embryonic cells, such as the glioblastoma and the spongioblastoma.

Tumors arising from the blood vessels, called by Cushing hemangioblastoma, are relatively benign tumors although they are somewhat rare. Upon their removal a cure can be expected. Pinealomas arising from the pineal gland or tumors of the pineal region are malignant not only by their cellular characteristics but by their location since it is technically difficult to effect such a removal.

There is another type of space-occupying lesion of the brain which may be classed under the general group of brain tumors. These are the granulomata, or the specific tissue reaction of the brain to invasion by the organisms which cause tuberculosis and syphilis, as well as various fungi. A tuberculoma may be removed, although the danger of tuberculous meningitis is present. A gumma should be treated as a brain tumor and removed. The various granulomata caused by the fungi, such as torula and actinomycosis, can also be removed. The prognosis varies with the virulence of the organism.

Technical surgical improvements, advances in knowledge of the life span of brain tumors, correlated with the clinical history and the cellular type of the tumor allow more definitive surgery.

TREATMENT

Treatment must, then, consist of visualization of the tumors, biopsy and confirmation of the type of tumor, and then removal of the tumor, if compatible with prolonged normal life. Each tumor must be treated as an individual. No general rules can be laid down regarding the removal of brain tumors. It is sometimes wiser in the experience of the neurosurgeon to confirm the presence of the tumor, to remove part of it, and decompress the patient so that he may survive a variable number of months or years in as much comfort and normalcy as possible. In other instances, particularly in the case of a benign tumor, it is wiser to effect a complete removal even at the danger of the loss of life.

CONCLUSIONS

In conclusion, then, it can be stated that we have presented some of the cardinal, classical and practical points enabling us to make a diagnosis of brain tumor at an early stage. If this can be done, the neurosurgeon is then presented with a much less difficult problem and can devote his entire efforts to the removal of the tumor or to the best treatment of the tumor, without worry as to the general condition of the patient. In this way and this way only can the operative mortality of brain tumors be kept down to the general minimum of five to ten per cent throughout the country. If the neurosurgeon is given such an opportunity to operate upon a patient in good general condition but harboring a known brain tumor, it is only proper that the patient can expect a sixty per cent chance of a cure or a seventy per cent chance of a relative cure. The actual postoperative mortality rate should be less than ten per cent.

RHEUMATIC HEART DISEASE IN CHILDREN

RECENT ADVANCES IN MANAGEMENT

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This paper is prepared in order to bring up to date the enormous amount of work that has been done on the management of one of our most tragic and crippling diseases. In the past, the American Academy of Pediatrics and the Pediatric Section of the American Medical Association have devoted a great deal of time to a study of this condition. It is indeed unfortunate that the disease has not hit the public fancy as has infantile paralysis since it is a much more serious and a considerably more prevalent condition.

It is generally agreed that there are about one million people in the United States suffering from rheumatic heart disease, and that about 40,000 deaths occur annually from this cause. The largest number of cases have their onset between the sixth and eighth years of life. In the past it was thought that rheumatic infections were practically non-existent in our Southern States. However, this is not the case, because I am sure all of us are constantly confronted with the condition, and we have many cases in our practices. Uyeda[1] at the New Orleans Charity Hospital found at this institution an incidence of 1.91 per cent rheumatic heart disease among routine autopsies in the five-year period from January 1, 1940 to January 1, 1945. These figures approach very closely those obtained from similar studies carried out in northern cities. From this fact it seems that geographic location alone is not a very important factor in estimating incidence of rheumatic fever.

Prevention is our most important consideration. The physician should become rheumatic fever conscious. If he would see to it that every child who recovers from acute illnesses, mild or severe, is examined later a good many with rheumatic manifestations would be detected earlier. Individuals recently recovered from rheumatic fever should, as much as possible, avoid contact with patients with streptococcus infections. Since the pediatrician and general practitioner see these children before the original attack of rheumatic fever, it is very necessary that they become acquainted with the early symptoms. These early symptoms, which do not constitute sufficient evidence for a diagnosis of rheumatic fever but often indicate a prerheumatic state, are as follows: Easy fatigability, listlessness, restlessness in sleep, unexplained bouts of fever, and failure to gain weight properly. With these symptoms alone a diagnosis of rheumatic fever should not be made, but such a child should be considered as having favorable soil in which the disease may be implanted. He should be kept under careful observation during the most susceptible years (7 to 13). All foci of infection should be removed. During illness and fever, adequate bed rest for a sufficiently long time should be supplied. Extra attention should

1. Uyeda, Iwao: Rheumatic Heart Disease, New Orleans M. & S. J. 98:271-278 (Dec.) '45.

be given to such items as proper diet and extra rest.

Susceptibility to the development of rheumatic fever and heart disease appears to be a characteristic inherited by 5 per cent of the American population. The disease is more frequently found in the poor, because in this class there is more opportunity for repeated infections, even though the number of susceptible individuals is about the same in all classes. Malnutrition and improper feeding predispose because of poor resistance to infections. Careful inquiry into the family history is important. Rheumatic fever is widespread throughout the world, and its prevalence is influenced by climatic conditions.

Morgan[2] emphasizes the following observations:

"1. The younger the child at the onset the severer the initial attack.

"2. The severer the initial attack, the more frequent the recurrences.

"3. The severer the initial attack, the longer the duration of active infection.

"4. The younger the child at the age of onset, the more protracted the active rheumatic episode.

"5. The severer the onset and the younger the child, the greater the cardiac damage at the end of a period of six years."

The acute attack may manifest itself by the typical polyarthritis and fever, and occasionally chorea with or without carditis. About 70 or 80 per cent of cases have their beginning in this manner, while the remainder have a more or less atypical insidious onset requiring prolonged observation and careful study. These are usually classed as examples of "fever of unknown origin."

The treatment varies with the stage of the disease. The most important simple therapeutic measure for the acutely ill child is bed rest. Rest should be both mental and physical. One must realize that he is dealing with an inflamed organ, the heart, and that drugs up to now have but little influence upon the inflammatory process. We know that, while rheumatic lesions in the joint heal, lesions of the cardiac tissues do not heal rapidly, and if they do, it is with the formation of local fibrosis.

There is no known successful remedy in the treatment of rheumatic heart disease. The use of vaccines, sera, sulfonamides, and penicillin have proved disappointing. Salicylates are the most important therapeutic agents during the active stage of the disease. They act by reducing the fever, joint swellings, muscle pains and tenderness, and by allaying related symptoms. Unfortunately, there appears to be no comparable improvement in the rheumatic process within the heart. Large doses of salicylates by vein or by mouth[3] are not so popular with the majority of clinicians. By far the best salicylate is aspirin, and sodium bicarbonate should be combined with it. It is of the utmost importance to withdraw the salicylate gradually. It is best to wait at least two weeks after the drug has been stopped before one may know whether the rheumatic process has subsided or whether the pain has not merely been relieved by salicylates.

So long as there is evidence of the rheumatic process the patient must be kept at rest in bed. This should be continued until 3 negative sedimentation readings have been obtained at weekly intervals and all other signs of rheumatic infection are absent.

Medication[4] used in the treatment of myocardial failure consists of (1) theocalcin (theobromine sodium acetate) in dosage of 3 to 5 grains daily, divided into three doses; (2) mercurial diuretics, such as salyrgan, given in doses of 0.5 to 1 cc. intravenously, preceded by the use of 3 to 4 grams of ammonium chloride for twenty-four hours; and (3) digitalis in doses of 1½ grains U. S. P. per 10 pounds of body weight. Its indication is auricular fibrillation and congestive heart failure. Digitalis is a dangerous drug, and to control the possibility of toxic effects electrocardiograms should be taken at frequent intervals at least every three days so that its effect can be observed, especially on auriculoventricular conduction.

Occasionally, 10 to 20 cc. of 50 per cent solution of hypertonic glucose may be given intravenously for its direct effect. When

2. Morgan, S. F.: Heart Disease in Children from the Pediatric Viewpoint, Wisconsin M. J. 44:676-679 (July) '45.

3. Taussig, H. B.: Management of Children with Rheumatic Heart Disease (Compensated and Decompensated), M. Clin. North America 18:1559-1578 (May) '35.

4. Watkins, A. G.: Management of Rheumatic Heart Disease in Early Life, Practitioner 153:161-165 (Sept.) '44.

pulmonary edema develops, venesection may be a lifesaving measure. About 2 cc. of blood per pound of body weight may be withdrawn. It is advisable at times to allow these patients out of bed, and to sit in a chair. Edema of the extremities then will probably develop, but this will relieve in part the pulmonary edema. If cyanosis develops, oxygen should be administered. Codeine and morphine may, of course, be given in order to make these patients as comfortable as possible. Repeated small transfusions may be given for their tonic effect.

In the management of rheumatic heart disease there are two fundamental considerations. These are:

(1) Is there evidence of active rheumatic infection?

(2) What is the functional capacity of the heart?

These two questions must be carefully considered in every case, for on these the whole future of the patient hinges. The main points to be considered are:

(1) Absence of symptoms: There must be no joint pain, swelling or other symptoms referable to the usual manifestations of juvenile rheumatism.

(2) Absence of fever: The initial pyrexia of an acute arthritic attack usually subsides in a short time after salicylate treatment, but pyrexia from a carditis, especially pericarditis, may last for a few weeks. A persistent low grade fever indicates a search for infection in the throat, and more rarely the onset of infective endocarditis. Contrary to common belief a low grade fever is seldom due to rheumatic infection in the absence of cardiac signs.

(3) Absence of upper respiratory infection: A careful examination of the throat, ears and sinuses is important, and the presence of hemolytic streptococci in the nose and throat is a sign of forthcoming trouble.

(4) A stable pulse rate: In cases of severe heart damage it may be impossible to get back to a normal pulse rate, and a patient with such damage should not necessarily be kept in bed until the rate is normal. The essential thing is that it should be steady and at its lowest ebb. In a normal person the pulse rate is about 5 to 10 beats higher when awake than when asleep. In an active carditis the sleeping pulse rate is raised to that of the rate when awake. As activity ceases, the line of the sleeping pulse will be found to separate and lie about 5 to 10 beats below the daytime recording. If activity recurs the two chartings will be found to merge close together again. This taking of the pulse when the child is asleep is one of the simplest tests of activity, and can be done at home by intelligent parents. It is also, incidentally, a useful practical means of distinguishing between a true and nervous tachycardia.

(5) Absence of chorea.

(6) Absence of rheumatic nodules: Their presence is evidence of active infection even in the absence of other signs, and indicates further rest in bed. The occurrence of rheumatic nodules is very infrequently found here. I can recall only two children who had them.

(7) Gain in weight.

(8) Sedimentation rate: This is a most important test. During the acute phase the sedimentation rate may be as high as 70 mm. per hour, and this gradually falls to normal as activity ceases. The length of time this takes varies from a few weeks to several months. It must be remembered that the test is not specific for rheumatism and that the rate is raised in any infection. During cardiac failure the sedimentation rate will often drop to normal or below and the drop may be one of the early signs of impending failure; conversely its increase after failure is evidence of recovery.

(9) Clinical examination of the heart: To some extent it is true that clinical examination of the heart is the least helpful of the methods to determine the presence or absence of rheumatic activity. Obviously, any signs such as pericardial rub or gallop rhythm indicate activity but murmurs as such are of little value in this determination. This is not in any way to minimize the value of repeated cardiac examinations but only to point out that in the determination of the particular problem other measures, for example, sedimentation rate, are better criteria.

What is the functional capacity of the heart? Far too many children are submitted to unnecessary restrictions because of a history of past rheumatism and the presence of a murmur. The most useful clinical guide in estimating the heart's functional capabilities is its size. In the absence

of clinical enlargement, the presence of murmurs per se does not call for restrictions in activities, once the patient has been proved to be free of infection. Cardiac breakdown in a child is not due to overexertion but to reinfection. When the apex beat is found outside the nipple line, the child should have his activities restricted, but, even so, may be allowed to take exercise within his capacity. Rosenblum[5] for the past 18 years has looked after children with organic heart disease who have attended a summer camp. These children are permitted to play baseball, swim and take hikes. This has caused no harmful effects. Of course, he was sure that none of these children had active rheumatic infection.

Tonsils should be removed whenever there is a history of repeated tonsillitis, even though no rheumatic process is associated with them. No tonsillectomy should be done in the active stage of the disease. It is advisable to give sulfonamides for a few days preceding and following the tonsil operation. Decayed and abscessed teeth, and infection in the gums, should also receive adequate attention. Needless to say, the child should have a balanced, high caloric diet with a maximum of vitamins and minerals. Obvious serious vitamin deficiencies are commonly seen with rheumatic fever, particularly in ascorbic acid and members of the B complex group. These should be specifically included in dietary management. The patient should be warmly dressed and should not at any time get chilled and suffer from extreme changes in temperature and humidity.

The prognosis for death or for disability due to cardiac deformity is directly related to the number of attacks of clinically recognized carditis, and because of this our major efforts should be directed at preventing these recurrences. It must be remembered that cardiac damage is caused by recurrent infections. A number of investigators have used sulfonamides as a prophylactic agent in the prevention of recurrences. Their reports have been very encouraging.

Platou[6] advises as follows: "Among our clinic clientele, follow-up observations are too sparse to make satisfactory evaluation of sulfadiazine possible. Our current plan is to give 0.5 gram of sulfadiazine daily with breakfast, continuously for at least three years after subsidence of the initial attack of rheumatic fever, and after repeated nose and throat cultures are reported negative for beta hemolytic streptococci. Elevation of the sedimentation rate alone appears to be no contraindication to initiating this program. The patients must be carefully observed for toxic effects during the first two weeks of such continuous administration."

We should realize that the use of sulfonamides in the prevention of recurrences of rheumatic infections is in the experimental stage. However, the work done so far is promising.

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SUMMARY

1. Rheumatic infections are a serious problem in the Southern States, as geographic location alone is not a very important factor in estimating the incidence of rheumatic fever.

2. Susceptibility to the development of rheumatic fever and heart disease appears to be a characteristic inherited by 5 per cent of the American population.

3. There is no known successful remedy in the treatment of rheumatic heart disease. Rest in bed is the most important therapeutic agent during the acute stage of the disease.

4. The sedimentation rate is the most important test, and clinical examination of the heart is the least helpful of the methods used to determine the presence or absence of rheumatic activity.

5. Recurrences are due to reinfections and our efforts should be directed to their prevention.

6. Cardiac breakdown in a child is not due to overexertion but to reinfection.

Illumination—The problem of comfortable, healthful, and efficient functioning of the eyes is of prime importance whether one is working in the school, the home, the office, or industry. Faulty illumination frequently leads to eyestrain which is often accompanied by reflex functional disturbances of other organs. Hygienic illumination is, therefore, intimately related to visual function. Since a large amount of one's visual work is ordinarily done under artificial illumination, the recommended practice of lighting for various kinds of visual work is of concern to all.—*Tinker, Am. J. Pub. Health, September* 1946.

THE TREATMENT OF WHOOPING COUGH

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The purpose of this paper is to review the modern conception of the prevention and treatment of whooping cough. Brief mention will be made of familiar clinical manifestations without any attempt to discuss them in detail.

Whooping cough still remains one of the more serious diseases of infancy and early childhood. Studies of ten thousand cases by Lottinger revealed that 20 per cent occurred in infants under one year of age and 80 per cent under five years. No age is immune. Rillet observed a case in an infant one day old whose mother had the disease. Gatti, Cackayne and Miles have also observed congenital cases. Many others have been seen during the first few days of life.

Before the prophylactic use of vaccine became widespread, Dr. Sterling (U. S. Public Health Service) said: "The deaths among little children—those under five years of age—from whooping cough, about 6,000, exceed those from diphtheria, scarlet fever, measles or tuberculosis. The number is greater than that of measles and scarlet fever combined. . . ." Most deaths occur in young infants. The younger the baby, the higher is the fatality rate. Between 1938 and 1940, there were reported in the United States 10,730 deaths from whooping cough. Of these, 67 per cent occurred in infants under one year of age and 47 per cent under six months. Until recently the case fatality rate for infants under six months was 25 per cent. Anything which can be done to protect against the ravages of such a disease will be worth while.

There is almost complete agreement among bacteriologists that whooping cough is caused by the Bordet-Gengou *Bacillus pertussis* (*H. pertussis*), a small gram-negative, non-motile rod. It is transmitted from the nose and throat by droplet spray.

The incubation period varies from one to three weeks, with an average of about ten days. The initial or catarrhal stage lasts some two weeks and is characterized by rhinitis, sneezing, lacrimation, and mild cough, symptoms almost identical with those of the common cold. The paroxysmal follows the catarrhal stage, is from one to several weeks in duration, and is identified by spasms of explosive coughing, whooping and vomiting which are usually worse at night. There is regularly some degree of lingering cough for several weeks or months.

While the course as described is the usual one, one will undoubtedly agree that whooping cough is an exceedingly variable disease. In fact, no other communicable disease of childhood is more unpredictable.

Although most patients recover from pertussis with no apparent sequelae, complications are not rare. Bronchopneumonia is the principal cause of the high case fatality rate among infants and frail young children. If pneumonia does not develop, paroxysmal coughing may weaken bronchial walls so that bronchiectasis subsequently ensues. The same mechanism may cause hernias or rectal prolapse. Convulsions may occur, and diarrhea is a frequent complication, especially during summer months. Occasionally, deafness or psychic disturbances may result.

The diagnosis of whooping cough during the typical paroxysmal stage is simple, but no other communicable disease of childhood is so seldom identified during its early and most contagious period. This is to be expected since the symptoms are practically identical with those of an acute coryza. Nasopharyngeal swabs, and cough plates when available and positive, are diagnostic. A total white blood count of fifteen thousand or above, with a predominance of lymphocytes, is an indicative aid but seldom appears before the onset of typical paroxysms. The sedimentation rate in uncomplicated whooping cough is normal. The temperature is seldom elevated. Agglutination tests, if available, are often positive during the catarrhal period. Practically, most of us must rely on history of contact, blood count, and clinical judgment to make the diagnosis.

It is apparent that whooping cough deserves our best efforts at prevention and treatment. Early diagnosis and isolation,

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with quarantine of contacts for the duration of the incubation period, should be practiced more than it is. All patients should be isolated from non-immune children for at least a month after onset of the disease. They should also be kept away from any possible source of superimposed respiratory infection.

Since the first attempt to produce active immunity against *H. pertussis* was made, some argument concerning the merits of the procedure has persisted, but today among those who have studied the disease most intensively and know it most intimately, there is almost complete agreement that it is one of our most valuable prophylactic agents. Infants and children properly immunized seldom develop the disease unless subjected to prolonged exposure, in which case symptoms are quite mild and complications unusual.

Since 1933 a municipally operated immunization clinic has been conducted in Evanston, Illinois, a city of seventy thousand. Mothers bring their babies soon after six months of age. In 1936 Dr. J. W. Pollard (Commissioner of Health for Evanston) stated in his annual report: "For the last decade, the average yearly total of whooping cough patients reported was 334. In 1936 there were 91 cases; 90 cases had never been vaccinated against whooping cough. . . ." Between 1938 and 1945 no child injected in Evanston has been known to develop the disease. In 1944 only three cases were reported in the city. None of these had been immunized.

The Council on Pharmacy and Chemistry of the American Medical Association and the American Academy of Pediatrics recognize the importance and advocate the practice of pertussis immunization. The vaccine to be used is made from phase 1 pertussis organisms and is of standard strength. Soon after six months of age infants should receive three injections (Sauer or other similar vaccine containing 15,000 to 20,000 million organisms per cc.) at intervals of two to four weeks for a total of 90,000 to 100,000 million organisms. Adequate immunity develops in two to four months following the last injection. Stimulating doses should be given every two years or after exposure until school age.

Following an attempt to immunize, with little success, several thousand infants under six months of age at the Cradle and Chicago Health Welfare Stations, infants in this age group were considered incapable of developing adequate pertussis antibodies. Recently Sako and his associates reported results from injecting 3,793 infants in the first half year of life with alum precipitated vaccine. Starting during the first month of life they gave monthly injections of vaccine (0.2, 0.3, 0.5 cc.) containing 40,000 million bacteria per cubic centimeter. The study covered twenty-six months, during which time 159 of the immunized children were exposed. Of these 18 per cent developed the disease. No deaths occurred in this group while there were thirteen deaths among controls. Sako believes the procedure to be of value. Because little is known of the duration of artificially induced immunity in early infancy, stimulating doses should be given in the second half of the first year.

In order to enhance the degree of immunity and at the same time reduce the number of injections in infancy, attempts to combine pertussis vaccine with diphtheria toxoid, tetanus toxoid and both diphtheria and tetanus toxoid in an alum precipitate have been made with a considerable degree of success. Several reports on the so-called "triple" vaccine have appeared. Best results have occurred following injections given at monthly intervals. All reports comparing plain and alum vaccine indicate a higher degree of immunity from smaller doses of the latter. Only alum precipitated vaccine should be used for infants under six months of age.

Undesirable reactions from pertussis vaccine are usually mild and transient. The systemic reactions, malaise and fever, more common when plain vaccine is used, are usually gone in twenty-four hours. They are controlled readily by small doses of salicylates. With refinement in product and technique, the local reactions following alum precipitate are of little significance. The site of injection should be cleansed with alcohol; no vaccine should be left on the needle point; the needle should be directed downward with a small amount of air in the syringe above the vaccine; the injection should be made subcutaneously, air following the vaccine and helping prevent back-

flow and contamination of the skin. Gentle massage should follow. By this technique some fifteen hundred injections of alum precipitated toxoid have been made in my office with abscesses in only one patient who was sensitive to the product.

A question of importance which the physician must answer is what to do with the child, especially the infant, who has been exposed to pertussis before any active immunity has developed. Until recently, measures have been more or less non-specific. Vaccines and antigens were given with indifferent results. Convalescent serum seems moderately effective but is not readily available. The best practice is to give infants and frail young children hyperimmune human whooping cough serum. This is prepared from the blood of immune, healthy, young adults who have received repeated injections of pertussis vaccine at regular intervals until their agglutination titers are high. The U. S. Institute of Health at Washington has authorized the preparation and distribution of this serum. The Philadelphia Serum Exchange, a non-profit serum center at the Children's Hospital of the University of Pennsylvania, prepares it. It is available to physicians everywhere. Its only disadvantage is that, being relatively expensive, its use may be limited. Best results follow injection soon after exposure. After brief contact, twenty cubic centimeters should be given in the muscle of the buttocks. If exposure is intimate or prolonged (24 hours), the dose should be repeated after three to five days. McGuinness gave hyperimmune serum to 308 non-immune infants and children following exposure. Of the 308, 78 per cent failed to develop the disease. One hundred and thirty-seven children were continuously exposed in households with contacts. Of these, 70 per cent failed to develop the disease (ordinarily not more than 10 to 20 per cent of thoroughly exposed, non-immune children fail to develop whooping cough). Of the children who did develop the disease, 22 per cent had mild and 10 per cent typical attacks.

Lapin protected 61 per cent of exposed children with twenty to forty cubic centimeters of adult serum. Jundell protected 80 per cent with 30-150 cubic centimeters of whole blood. Hyperimmune rabbit serum may be of value but has the disadvantage of being a foreign protein which may cause undesirable reactions.

Bradford and Scherp in 1941 demonstrated the effectiveness of the globulin fraction of antipertussis rabbit serum in preventing the disease in 65 per cent of twenty children with familial exposures. Cohn by electrophoretic analysis on hyperimmune human serum has shown the antibodies to be a part of the gamma globulin fraction. This makes possible the future concentration of antibodies in small doses.

The immunity conferred passively by serum is temporary, enduring for only two to four weeks. If the disease does not develop, active immunization should subsequently be done.

The morbidity and high case fatality rate of whooping cough in young infants have long excited efforts to modify and control the disease. The list of innumerable therapeutic agents used in the past testifies to the inadequacy of treatment, but there is more or less common agreement that certain non-specific measures are of value. The patient should be kept from undue exertion, though he may be out of doors when the weather is fair and warm. He should have adequate amounts of easily digested foods. Mild sedation may aid rest. Atropine, if used for cough, should be given in small doses lest tenacious secretions be made more viscid. In recent years various antigens have been used in treatment as well as in the prophylaxis of whooping cough and with no better results. There is considerable evidence that convalescent serum, whole blood from immune donors, and pooled serum and plasma are effective when given in adequate amounts. Brown treated fourteen children in the catarrhal stage with twenty to thirty-five cubic centimeters of adult blood and reported good results in 37 per cent. In some twenty infants under one year of age, one-half of whom were under six months, I have observed very satisfactory results when pooled serum or plasma was given in the catarrhal and early paroxysmal stages. Symptoms were markedly less severe within a week following injections and there were no deaths.

The most efficacious therapeutic agent available is hyperimmune human serum. When given in adequate amounts it causes

symptoms to be rendered mild and the fatality rate to be markedly reduced. McGuinness has reported the use of this serum with gratifying results. According to his latest figures 442 infants and young children have been treated after the onset of paroxysms. Of this group, 236 were under one year and 126 under six months of age. Fifty five had bronchopneumonia when treatment was started. Good results followed in 70 per cent, moderate results in 20 per cent, and poor results in 8.6 per cent of all cases. Of the 176 cases under six months of age, there were five deaths, a case fatality rate of 2.8 per cent. All of the infants who died had bronchopneumonia on admission and were given less than the minimum recommended dose of serum. They were also given either sulfathiazole or sulfadiazine.

Scheinblum and Bulloma treated twenty-three patients with hyperimmune human serum. Sixteen were under one year and twelve under three months of age. All were critically ill on admission. There were no deaths.

McGuinness advocates a minimum of three injections of twenty cubic centimeters each at 48-hour intervals for a total of sixty cubic centimeters of serum. Many cases may need an additional dose. Critically ill patients may well be given fifty to one hundred cubic centimeters intravenously as an initial injection. Given in this manner the serum is less painful and more rapid in action.

Lapin summarizes as follows the present conception of serotherapy in pertussis: "Thus the evidence at hand seems to show that injection of convalescent or hyperimmune serum in the catarrhal stage of whooping cough results in these benefits to the patients: The percentage of abortive and mild cases is much greater than with any other method of treatment; the number of paroxysms within 24 hour periods is definitely decreased, and the incidence of complications and the death rate, particularly in children under one year of age, are markedly reduced."

In addition to serum, severely ill patients should also receive sulfadiazine or penicillin and oxygen as required.

SUMMARY

In summary it may be said that whooping cough, which until recently killed 10,000 infants and children in the United States each year and caused suffering to many thousands more, can now be prevented or rendered much less severe through the use of present day methods of control. It is suggested that all infants be immunized against the disease soon after six months of age. Plain phase 1 vaccine alone or combined with other vaccines in alum precipitate may be used. If alum precipitate is used, immunization may be carried out in infants under six months of age. Stimulating doses should be given every two years until the children are in school. Infants immunized before six months should have stimulating doses in the latter half of the first year.

For the non-immune infant or frail child who has been exposed, hyperimmune human serum prevents whooping cough or renders it less severe in most cases. It has markedly reduced the mortality in infants.

While they are less effective and require larger doses, whole blood from immune adults and pooled plasma and serum are probably beneficial in prevention and treatment of the disease.

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General Analgesia in Labor—The analgesic effect exerted by demerol was gratifying in practically all cases. Analgesia was good in about ninety per cent of the patients and amnesia was present in about eighty per cent of them. No excitement was experienced in any of the patients. Demerol alone, or in combination with scopolamine, affords the most comfortable analgesic properties for the first stage of labor of anything I have used.

The demerol-scopolamine for analgesic purposes, followed at the opportune time by low spinal anesthesia, does not give the completely painless labor that may be afforded by continuous caudal anesthesia. However, low spinal anesthesia is less difficult to carry out and anesthesia is obtained almost instantly. In the series reported here there have been no failures. The average time required for low spinal anesthesia was usually four or five minutes. The low spinal anesthesia requires much less of the physician's time and much less of the nurse's time than does continuous caudal anesthesia. The cervix, if not completely dilated at time of induction, soon dilates and the presenting part usually descends rapidly and—except for occiput, transverse or posterior positions—crowning is usually observed in less than thirty minutes after the novocain had been injected.

Patients may then be permitted to deliver spontaneously or delivery is accomplished by means of an episiotomy and outlet forceps. In multiparas the uterine contractions are capable of producing delivery without the use of outlet forceps. Because of the complete relaxation of the perineal muscles, rotation with forceps is accomplished much more easily. Also the length of the labor was shortened because of the relaxation of the perineum, the lower uterine segment, and the vaginal canal.

Almost all patients admitted were given demerol-scopolamine analgesia and spinal anesthesia. This procedure seemed much more practical because there was only one physician and one nurse present. It was not practical or convenient for the nurse to give inhalation anesthesia and assist the physician.

The patients were cooperative and did not require the nurse's presence constantly. It has not been necessary to give any ether except in the case of three versions where some ether anesthesia was needed because the spinal anesthesia did not extend high enough.

It is my opinion that demerol-scopolamine analgesia, followed by low spinal anesthesia with relatively small amounts of novocain, is the best and safest method of anesthesia for vaginal delivery.—*Turner, J. Tennessee M. A., September* '46.

Prostatic Surgery in the Aged—When the patient is ready for operation, my preoperative orders are 1.5 gr. nembutal the preceding night and 1/3 gr. pantopon and 1/150 gr. atropine the following morning before surgery. One hour following this medication, the patient is carried to surgery. The type of anesthesia is of topmost importance and cannot be stressed too greatly. In my experience the ideal anesthesia for transurethral resection is low spinal and sodium pentothal. The low spinal anesthetic blocks the lower sacral and pudendal plexuses; it produces a complete anesthesia confined to the perineum, the genitalia, and the bladder, and it extends to a point midway between the suprapubic and the umbilicus. It does not often produce motor paralysis of the lower extremities.

The technic of low spinal anesthesia is as follows: A 22-gauge spinal puncture needle with a 45-degree bevel tip is used for making the spinal tap at the level of the third or fourth interspace; a tap at the fifth interspace is made if possible, while the patient is sitting in the upright position. One-half ampule of ephedrine sulfate is given just before the spinal needle enters the canal. After the tap is done, 1 to 2 cc. at most is allowed to drip into an ampule containing 50 to 100 mg. of novocaine crystals. It must be remembered that there are three factors of major importance which regulate the level of anesthesia. First, the level of anesthesia is directly proportional to the volume of spinal fluid; second, the higher the level the larger the dose needed; and third, the greater the speed of injection the higher the immediate level. Therefore, after 2 cc. of spinal fluid is obtained and mixed with 100 mg. of novocaine crystals, from .5 cc. to .75 cc. is slowly injected into the epidural space and the spinal puncture needle withdrawn. After the spinal anesthetic has been given the patient is supported in the sitting position for a period of three minutes while the anesthetic agent becomes fixed to the nervous tissue below the level of the spinal tap. After this period has elapsed, the patient can be placed in the horizontal position and will not develop a higher anesthetic level. Extensive experience has demonstrated its safety. There is virtually no vasomotor collapse.

During the operative procedure it is well to watch the patient closely. If he complains of undue physical distress or mental anxiety, an investigation as to the cause should be made immediately. As the anesthetic does not affect the lower extremities and since the patient's legs are held in fixed and unnatural position for a long period of time, he may be made exceedingly uncomfortable by fatigue and cramping. This might, and can, constitute an additional operative insult that may substantially contribute to the precipitation of surgical shock. Therefore the patient's complaints during the surgery should not be disregarded, and he should be allowed to move his legs and change his position if he is uncomfortable. During the operative procedure I routinely give blood plasma or whole blood.—*Bridges, Texas State J. Med., September* '46.

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SALICYLISM

"Although salicylates have been used in the treatment of rheumatic fever and for relief of pain in the other arthritides for nearly seventy years, not until the recent work of Coburn has it become customary to administer massive doses of salicylates over a protracted interval. Little attention has been directed towards the possible toxic effect of the drug when used over a long period with high plasma levels and high tissue saturation."

Thus do Caravati and Whims[1] open their discussion of this timely and somewhat neglected subject. The authors go on to tell us that "in the application of this therapeutic procedure in a comparatively small series of cases, we have encountered troublesome and potentially serious toxic reactions and the purpose of this paper is to emphasize the importance of recognition of these untoward symptoms and to suggest a therapeutic regimen for their control."

"The active principle of all the salicylates is salicylic acid and the analgesic and antipyretic effect of salicylates, long recognized, is thought to be due to the effect of salicylic acid on the hypothalamus, causing reduction of fever and obtundation of pain. . . . The central action of the drug is probably also responsible for most of the toxic phenomena associated with its use. The most commonly seen unfavorable reactions are tinnitus, dizziness, nausea and vomiting, while fever, tachypnea, cutaneous eruption, mental unrest and coma are not rare. . . .

"Failure to recognize the occurrence of severe toxic mental changes leads to profound coma and ultimate death. When these symptoms are noted, appropriate treatment should be promptly instituted and should consist of the following: (1) Discontinue the drug. (2) Give large doses of sodium bicarbonate; this will cause diuresis, raise the pH of the urine and promptly reduce the plasma salicylate level. (3) Establish proper hydration with adequate fluids, either orally or parenterally. (4) Apply cooling measures for fever, if present. (5) Give food to meet excessive catabolism. (6) If central depression is marked, caffeine or ephedrine may be required."

And in conclusion we are told that "(1) evidence has been presented that indicates that the prominent symptoms of salicylism are manifestations of the central effect of the drug; that tinnitus, dizziness, nausea, vomiting, fever, tachypnea and encephalopathies noted when large doses of salicylates are administered are caused by the effect of the drug on the higher centers.

"(2) That intravenous salicylate therapy is unnecessary.

"(3) That alkalies should not be given concomitantly with salicylates when it is desirable to reach a high plasma level, but should be reserved for use when toxic symptoms develop.

"(4) That plasma salicylate levels are promptly reduced by alkali therapy.

"(5) That an awareness of the toxicity of salicylates should be constantly present when administering the drug in large doses or over a prolonged period of time."

Caravati and Whims have rendered a service in calling attention to the untoward effects of the salicylates, especially now that large doses are being employed by many practitioners. For such a long time the salicylates have been prescribed freely and have been regarded as being largely free from danger that it is probable that many doctors are none too well informed as to

1. Caravati, Charles M., and Whims, C. B.: General Manifestations of Salicylism, South. M. J. 38:722 (November) 1945.

their injurious possibilities. Though the authors are careful to inform us that they investigated only a "comparatively small series of cases," their warning should not go unheeded. And, it is to be hoped, that their investigations can be repeated upon a larger scale, both by themselves and by other observers.

TWENTY-FIFTH ANNIVERSARY OF THE DISCOVERY OF INSULIN

The twenty-fifth anniversary of the discovery of insulin was observed with a program in Convocation Hall, at the University of Toronto, on September 16. Many internationally known figures in the field of medicine were present to honor the occasion. Among them were R. D. Lawrence, physician in charge, Diabetic Clinic, Kings College Hospital, London, England; H. C. Hagedorn, of Gentofte, Denmark; Bernardo A. Houssay, Research Institute of Experimental Biology and Medicine, Buenos Aires, Argentina; and Elliott P. Joslin, Harvard Medical School, Boston, U. S. A. This observation was followed by the regular annual meeting of the American Diabetes Association.

On September 23 Eli Lilly and Company sponsored an international diabetes clinic at the Indiana University Medical Center in Herty Hall of the State Board of Health Building, Indianapolis, Indiana. International importance was given to this meeting by the presence of Professor Charles H. Best, Toronto, Canada, co-discoverer with Banting of insulin, Professor Houssay, Dr. Lawrence, and Dr. Hagedorn. They discussed various phases of diabetic care.

MEDICAL COLLEGE OF ALABAMA NEWS

Recent additions have been made as follows to the Library of the College:

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NOTICE OF MEETING

THE ALABAMA ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

The Alabama Association of Obstetricians and Gynecologists extends an invitation to the profession to attend its meeting to be held at 2:30 o'clock, October 17, 1946, in the auditorium of the Jefferson-Hillman Hospital of the Medical College of Alabama, Birmingham.

Essayists will include Dr. M. Y. Dabney, Birmingham; Dr. Emil Novak, Baltimore, who will speak before both the afternoon and evening sessions; and Drs. A. E. Thomas and J. W. Perry, Montgomery.

At 5:30 a tea will be given, honoring Dr. Novak and other speakers.

Those who can avail themselves of the opportunity of attending the meeting should so advise Dr. Hunter M. Brown, Secretary, 1922 Tenth Avenue S., Birmingham.

STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

B. F. Austin, M. D.
State Health Officer

BACTERIAL WARFARE

Several months after the outbreak of the first World War but before this country became an active participant in that struggle, German agents inoculated with disease-producing bacteria a number of American cattle and horses destined for shipment overseas. This may not have been the beginning of bacterial warfare—opinion differs on that matter—but it impressed upon officials of this country, and those which were soon to become our allies, the dangerous potentialities of this type of war-making.

We heard much about it during the second World War, and it was generally understood that American and Allied scientists and military men were not missing any bets regarding it. Although the average American has a feeling of horror over the thought of introducing new forms of frightfulness, even in wartime, it was realized that we might have to cope with it defensively after its introduction by our enemies and that therefore we needed to know as much about it as they did. There was also the echo of the time-honored military maxim that no nation, however highly civilized, will lose a war through unwillingness to use a revolutionary and frightful means of war-making. So even the average humble American was pretty certain that his country was exploring to the fullest the possibilities of bacterial, or biological, warfare.

Revelations made since the war's end have amply confirmed that assumption. Not only was this country fully abreast of her enemies in this field but it was far in advance of them. Had they started fighting that way, we would have been ready not only to fight back with devastating force but also to protect ourselves against wholesale bacterial death and, almost as important from a military standpoint, protect our crops, animals and other property against destruction.

How well this nation's scientists and those of our allies labored in that vital field was emphasized by George W. Merck, president of one of the country's leading drug manufacturers, in an address on May 16 at the Westinghouse Centennial Forum in Pittsburgh. Mr. Merck was peculiarly fitted to discuss this subject with authority, because he served during World War II as special consultant to the Secretary of War and as chairman of the United States Biological Warfare Committee. For these distinguished services to his nation and the entire allied world at a time of grave international peril he recently received the Medal of Merit. The writer is indebted to the text of that address, published in a recent issue of his firm's official publication, for the major portion of the material used in this article.

"Biological warfare no longer can be regarded as a laboratory experiment," he said. "It has advanced far beyond the laboratory stage, and its possibilities have been sufficently explored to permit its serious consideration as an effective type of warfare. It is something which, first of all, must be given adequate attention in any comprehensive defense plan and the art of its use developed as a 'threat in being' of equal importance to our potentialities in gas warfare."

What, specifically, is biological warfare? Let us turn to Mr. Merck for a definition. Said he:

"Biological warfare may be defined as the use—and the defense against the use—of bacteria, fungi, viruses, rickettsias, and toxic agents derived from living organisms (as distinguished from synthetic chemicals used as gases or poisons) to produce death or disease in men, animals, or plants. It may be directed against military or naval forces, civilian populations, livestock, or crops. Employed against personnel, it may cause fatalities, or only incapacitate; the duration of illness may be brief or protracted; the causative agents used may be persistent or nonpersistent; they may spread readily from infected to healthy persons, or they may be of a type which produces noncontagious disease."

The limited use of biological warfare in World War I merely opened the door to its potentialities in future warfare, and during the uneasy peace between the great wars scientists in many countries went to work with zeal to beat their rivals in other countries in the race for superiority in this new form of destruction. It was only to be expected that the United States, the leading industrial nation of the world and a leader in research in many fields, would be in the forefront of this grim race for supremacy.

This competition became even more intense after the second World War broke out. In the fall of 1941, just before Pearl Harbor, a group of American scientists presented to the then Secretary of War, Henry L. Stimson, a suggestion that research in this field be greatly stimulated and intensified, lest the nation be unprepared to defend itself and its people against this type of warfare in the event of our entry into the struggle. Mr. Stimson readily agreed with these men and called upon the National Academy of Sciences and the National Research Council to assist him with information and advice.

A special committee of distinguished scientists went to work on this new assignment and, after it completed its studies, these two groups made their report to the Secretary of War. The gist of that report was that biological warfare appeared to be altogether feasible and that effective measures should be employed to place the nation in a state of defensive protection against its use by future enemies.

"The value of biological warfare will be a debatable question until it has been clearly proven or disproven by experience," these scientists declared. "The wise assumption is that any method which appears to offer advantages to a nation at war will be vigorously employed by that nation. There is but one logical course to pursue, namely, to study the possibilities of such warfare from every angle, make every preparation for reducing its effectiveness, and thereby reduce the likelihood of its use."

That report and the reports of enemy activity in the biological warfare field moved President Roosevelt to order the launching of intensified studies of the possibilities and potentialities of this new science, with the active collaboration of Great Britain and Canada.

Mr. Merck listed the following as being among the project's chief accomplishments:

(1) Development of methods and facilities for the production on a stupendous scale of pathogenic microorganisms and their products. (2) Development of methods for the rapid and accurate detection of minute quantities of disease-producing agents. (3) Important contributions to scientific knowledge of the properties and behavior of airborne disease-producing agents. (4) Isolation and study, for the first time in the history of biological science, of a pure, crystallin bacterial toxin. (5) Development of vaccines for the protection of chickens against the dangerously fatal poultry diseases known as Newcastle disease and fowl plague. (6) Progress in the treatment of certain infectious diseases in humans and other mammals. (7) Development and testing of a vaccine to protect cattle against the highly fatal disease known as rinderpest, which might have been introduced into the country by accident or by the enemy and which might conceivably have dangerously reduced the nation's meat supply, and also its supply of milk and dairy products. (8) Elaborate studies covering the production and control of certain diseases adversely affecting food crops and others. (9) The assembling of valuable information showing the effect upon living plants of more than 1,000 different chemical agents.

Concerning the last-mentioned of these accomplishments, the speaker said:

"The work was initiated to find destructive agents against various crops and was successful. Only the rapid ending of the war prevented field trials in an active theater of synthetic agents which would, without injury to human or animal life, affect the growing crops and make them useless.

"Applications of certain of these agents, even in infinitesimal dilution, had shown that they were capable of depriving the enemy of the benefits of his own labor by depriving his garden and field crops of their fruits. Not until he had carried through the labors of cultivation would he find that the roots had grown sere and that the plant must wither away without yield."

Those in charge of the project, all of them fully qualified to speak with authority, have expressed the belief that in time it will be

possible to bring any living plant process under control by means of the critical use of substances affecting their growth. The implications of this are crystal-clear: Every agricultural or horticultural practice playing a part in growth, development, ripening or storage can be directed, for good or ill, by man. And, much more significant, the same kind of control over animal and plant life can be made to work for great good for the human race, as well as for evil. It is not too much to expect that farming and animal husbandry will soon feel its effects markedly. And there is little doubt that it will leave a conspicuous and far-reaching mark upon the treatment of human illnesses. We must, however, wait for the full portent of this new control until the full story of biological warfare can be told. Thus far the curtain has been only slightly lifted.

That slight curtain-lifting has been sufficient, however, to reveal what biological warfare—one phase of it—has been able to accomplish in the conquest of one of the potentially most serious threats to the nation's livestock. I refer to the development of a protective serum against rinderpest, an exceedingly contagious and fatal disease occurring among cattle. With an army of many millions to be fed in all parts of the world, to say nothing of our own civilian population and our allies, an outbreak of this disease, either through accidental importation or by enemy action, might conceivably have stalled our huge military machine in its tracks, brought starvation to our people at home and abroad and given our enemies an easy victory. Mr. Merck used the drastic word catastrophic to describe the possible results. Its use would appear to be justified in literal truth.

Canadian authorities also saw the need for effective protective measures against this disease, and so a joint Canadian-American project was organized. Its fruits were described as follows by the speaker:

"The result of this combined effort was the discovery that after the bovine rinderpest virus had been successfully passed through some fifty developing chick embryos it has become avianized to the point where it would not produce appreciable disease in cattle. As a matter of fact, only very minor reactions were found to follow its injection into susceptible animals. On the other hand, cattle receiving injections of this avianized virus were subsequently found to be substantially immune when exposed to the fully virulent bovine virus. The new vaccine has been subjected to a wholly successful field test in Africa through the cooperation of our British allies.

"These findings immediately pointed the way to the means for providing protection for millions of our cattle with a vaccine which could be produced in huge quantities without the many difficulties involved in producing the bovine tissue type of vaccine. Thus, had rinderpest unfortunately made its appearance on this continent during the war, we would have been prepared to cope with it in a manner heretofore impossible. Aside from the insurance provided by the rinderpest investigations and their results during the war period, the findings and knowledge gained from this work will be of great postwar value."

As Mr. Merck pointed out, "there still is much to be done" in this startling new science of biological warfare which, since the end of the war, is being carried on against enemies of humanity generally, rather than against certain segments of our fellow-humans. Many of us will await with interest and deep concern the strange new developments it will produce.

BUREAU OF LABORATORIES

H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

JULY 1946

Examinations for diphtheria bacilli and Vincent's	342
Agglutination tests (typhoid, Brill's and undulant fever)	1,532
Typhoid cultures (blood, feces and urine)	1,256
Examinations for malaria	1,292
Examinations for intestinal parasites	2,434
Serologic tests for syphilis (blood and spinal fluid)	29,818
Darkfield examinations	43
Examinations for gonococci	4,302
Examinations for tubercle bacilli	1,786
Examinations for meningococci	2
Examinations for Negri bodies (microscopic)	138
Water examinations	1,470
Milk examinations	3,018
Miscellaneous	594
Total	48,032

BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

CURRENT MORBIDITY STATISTICS

1946

	June	July	E. E.* July
Typhoid	12	6	28
Typhus	39	69	65
Malaria	170	162	595
Smallpox	0	0	1
Measles	598	124	138
Scarlet fever	42	35	31
Whooping cough	133	80	153
Diphtheria	17	24	20
Influenza	72	29	28
Mumps	51	9	62
Poliomyelitis	87	87	13
Encephalitis	2	2	1
Chickenpox	44	7	15
Tetanus	5	4	4
Tuberculosis	357	324	298
Pellagra	0	3	22
Meningitis	15	4	11
Pneumonia	301	253	118
Syphilis	1159	897	1468
Chancroid	19	14	9
Gonorrhea	1162	806	494
Trachoma	0	0	0
Tularemia	4	1	1
Undulant fever	10	7	8
Dengue	0	0	0
Amebic dysentery	1	8	0
Cancer	255	284	0
Rabies—Human cases	0	0	0
Positive animal heads	63	58	—

As reported by physicians and including deaths not reported as cases.

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

BUREAU OF MATERNAL AND CHILD HEALTH

J. S. Hough, M. D., Acting Director

NUTRITION IN PREGNANCY AND LACTATION

Contributed by

Myrtle M. Letford, B. S., M. S.
Nutritionist

Sufficient data have been accumulated to indicate that the well-being of the fetus and the outcome of gestation are influenced by the mother's nutritional state at the time of conception and during pregnancy and lactation. Icie Macy Hoobler, 1944, says: "Evidence indicates that if the mother were in a nutritionally adequate condition prior to conception and received an adequate diet during pregnancy and lactation, supported by sound medical guidance throughout, maternity would be less hazardous and children would receive their rightful nutritional heritage."

The most far-reaching contribution of science to civilization is that the new chemistry of nutrition points the way to improvement of life processes and permits full realization of the potentialities both of youth and maturity.

Burke, 1943, says there is a need for effective and intelligent nutrition teaching during this period of life. It would result in increased maternal benefits, marked improvements in childbirth and development, and improved nutrition for the whole family.

The most suitable yardstick of nutrition is our present standards for dietary essentials of the Food and Nutrition Board of the National Research Council, 1945.

We know that pregnancy produces strain, and, certainly, the dietary needs of the expectant mothers are more than those of any similarly healthy non-pregnant woman. This unmeasured increased demand has given food faddists and others opportunities for unwarranted advice and advertising.

The National Research Council recommends 2500 calories per day for the average pregnant woman. Additional calories are obtained, if needed, by increasing carbohydrates and fats. If for some reason the doctor recommends weight reduction, by reducing calories to less than 2000, the dietary supplement of minerals and vitamins may be necessary, depending on what foods are omitted.

There seems to be a difference of opinion as to how much protein is needed during pregnancy. However, there is an agreement for a positive nitrogen balance. Five research workers advise a protein range of from 70 to 150 gms. per day. The above minimum requirement can be supplied by serving each day one moderately large serving of meat, three or four glasses of milk, liver once a week, egg, and whole grain cereal; cheese, peanut butter, and beans or peas may be served several times a week. It is necessary that we take into consideration the availability of foods and the methods of preparation. If for any reason it is impossible to obtain protein daily in the form of meats, there would be a need to increase the servings of some of the other protein foods. Arnold, 1942, New Orleans, says the type of protein should be considered, and one-half or more should be complete proteins or of animal origin, such as meats, milk and eggs. One is aware that these foods also contribute other food nutrients. Whole milk furnishes a significant amount

of riboflavin and calcium; also vitamin A. Lean meats are very good sources of some vitamins and minerals.

Research workers, Ebb, Tisdale, and others, 1942, Toronto, Canada, give a report as to the importance of the effect of maternal nutrition on fetal development and infant health. Space limits a detailed report of this experiment. (For reference, see the bibliography.)

Nutrition studies during pregnancy, by Burke and others at Harvard University, give significant data collected on a selected group of mothers and their children. The 216 women in this study were selected from the prenatal clinic of the Boston Lying-In Hospital. These women have been studied over a period of fifteen years, beginning in 1930. Of the women with good or excellent diets, 68% had a normal prenatal course; of those who had poor to very poor diets only 42% had a normal course during the prenatal period. Preeclampsia did not occur in those women whose diets were good to excellent, but 50% of the mothers whose diets were poor to very poor had toxemia. Mothers whose nutrition was good or excellent gave birth to more superior infants than those whose diets were poor. (See the bibliography for reference.)

Let us review the possible effect of a diet inadequate in protein. Human blood plasma contains from 90% to 92% water; about 7% of the solid matter of plasma is protein. The plasma proteins are albumin, globulin and fibrinogen. The ratio of albumin to globulin in normal plasma varies from about 1.5:1 to 2.5:1 with an average of about 1.55:1. This may change if the protein intake becomes low or if pathological conditions are present. Under normal conditions the colloidal osmotic pressure of the blood, due almost entirely to the proteins of the plasma, is the force which balances the hydrostatic pressure in the capillaries. It is easy to see that if the protein content of the plasma were to fall, the effective colloidal osmotic pressure would drop; more water would be forced out and less would be absorbed. The water of the blood would pass into the tissues, and edema or hypoproteinemia would result. The ratio of albumin to globulin would change from 1.5:1 down to 1:1 or less. This condition which often happens in pregnancy is largely due to protein deficiency. It may be due to low protein intake or to a pathological condition.

It is well known that the amino acids derived from metabolism of proteins are used in growth and tissue repair and often pass through the placenta by simple diffusion and are used by the fetus as available tissue building material.

Cannon, 1944, says: "We have known for a long time that there is a definite relationship between starvation and a tendency to infection. In the presence of marked protein deficiency there is both clinical and experimental evidence warranting the utilization of good quality protein in the effort to restore depleted tissues and thereby promote a more effective functioning of the bone marrow and other phagocytic tissues as well as to maintain and extend the potentialities of the antibody mechanism."

Hunscher and Macy Hoobler, 1934, and Macy Hoobler, 1944, explain that a sufficient protein intake in late pregnancy is believed to influence lactation with respect to quality and quantity of milk produced.

The concensus of the workers mentioned in this paper indicates that successful breast feeding seems to be higher among mothers receiving adequate diets.

According to the recommended dietary allowances of the Food and Nutrition Board of the National Research Council, revised, 1945, vitamin needs are increased during pregnancy and lactation. To be specific, vitamins are essential constituents of the diet which are necessary in minute amounts for maintaining the normal activity of the tissues. In general an adequate supply of vitamins will aid in the prevention of tissue depletion, biochemical lesions, functional lesions, and anatomic lesions.

Rosenberg, 1945, says that the chief functions of vitamin A in human nutrition are to maintain integrity of the epithelial tissues; to promote growth, fertility, and reproduction; to increase resistance to infection; and to regenerate visual purple.

Human milk contains from five to ten times as much vitamin A as does cow's milk, according to Eddy and Dalldorf. We should encourage mothers to continue a diet rich in vitamin A during the period of lactation. Green leafy vegetables, yellow vegetables, butter, cheese, liver, and whole milk are our best common sources of vitamin A.

Vitamin D is related to rickets and is spoken of as antirachitic vitamin. It is necessary for normal formation of calcium and phosphorus and, therefore, for the health of the bone and tooth development. The Food and Nutrition Board of the National Research Council recommends 400-800 International Units of vitamin D for pregnancy and lactation.

In severe deficiency, breeding does not take place in rats, according to Toverud, 1944. If the deficiency is mild, the young may appear normal at first but later develop rickets. In a rachitogenic diet it was found that rats fed low in calcium did not breed sufficient offspring to permit study. When vitamin D was added, the number of young greatly increased and none showed skeletal deformities. Of those rats not given vitamin D, at least one-half showed skeletal deformities; such as curving of the ulna, tibia and fibula. Worknay, Children's Hospital, Cincinnati, Ohio, in his studies with rats, has added much to the nutritional field.

Since there is not an abundance of vitamin D in foods and we do not get enough from sunshine, it is important to encourage medication of this vitamin for the pregnant and lactating mother and for the infant. Recommendations should be made by the doctor.

Vitamin K is associated with blood clotting. The prothrombin time is increased if there is a deficiency of this vitamin. Fibrinogen, which is a protein of blood plasma, mentioned earlier in this paper, is necessary for blood clotting.

Williams, 1944, says the syndrone called hemorrhagic or hypoprothrombinemia is due to low prothrombin level in the newborn. Preferably every mother should be given vitamin K before delivery to increase the prothrombin in the blood. If this is not done, it should be given to the infant.

It is quite frequent that in pregnancy, if there is hyperemesis gravidarum which usually occurs early, polyneuritis of pregnancy may develop; also this may cause a multiple deficiency including thiamin, riboflavin, niacine and ascorbic acid. If this condition is not corrected, complications are likely to occur in pregnancy and lactation.

Spies, 1944, reported a case which shows the relationship of the nutritional status of a woman during pregnancy and the condition later of the nursing infant, also the rehabilitation of both by treatment of the mother.

Hart and associates, 1944, found therapy to be of value in nausea and vomiting of pregnancy. Theobald, 1942, successfully treated five cases of neuritis of pregnancy by means of good diet. In four cases the cure was brought about solely by the administration of thiamine concentrate. Other studies have not been so successful.

Vitamin C aids in the formation of cementing and supporting materials of the body. The Food and Nutrition Board of the National Research Council recommends 100-150 mg. of vitamin C during pregnancy and lactation to provide for the growing fetus and the secretion of vitamin C in milk.

Studies on vitamin C indicate that the season has a considerable influence on vitamin C blood levels. This is to be expected, for in different seasons, such as the summer months, we have a more abundant supply of fruits and vegetables, the foods that supply most of vitamin C. All the year, and especially during the winter months, we should encourage the daily use of orange juice or tomato juice to help to insure an adequate intake of this vitamin.

It is obvious from the review of available literature that the nutritional status during pregnancy and lactation plays a very important part in the condition of mother and child. Doctors, nurses and nutritionists have an excellent opportunity for good practical nutrition teaching. We wonder if our people understand the importance of an adequate diet during the preconceptional period. If our mothers received an adequate diet at this period, there would not be a radical change in the diet during pregnancy and lactation.

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Making a Correct Diagnosis—It is my impression that one of the most frequent diagnostic blunders we make is our failure to recognize the functional basis for so many complaints. I fully realize that extreme care and caution must be exercised not to label a truly organic condition with the label of psychoneurosis; on the other hand, I also realize that the same care and caution must be exercised not to label a truly psychoneurotic condition with the label of an organic disease. Both mistakes should be equally embarrassing, and I wonder which mistake is made more often. I believe the latter, and I believe further that it is just as serious an error in diagnosis as the former. With this latter statement, I am sure many of you will disagree, and perhaps you may be justified in doing so; but two years' training in neurology many years ago, plus my observation and handling of patients since that time, leads me to that conclusion. Let us not forget that unsatisfactory and uncomfortable situations in life, disappointments and discontent, often give rise to symptom complexes resembling somewhat organic conditions; and if we do have a tendency to forget this fact, I am sure it will not be long before we will have patients come in who have been the rounds, who have had various operations, not only in our own particular field but in others as well, and who are still complaining and seeking and hoping to find some doctor somewhere who can give them perfect physical health, something they may already have but are not conscious of it.—*Edmonds, Virginia M. Monthly, September* 46.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES, MAY 1946, AND COMPARATIVE RATES FOR 1946, 1945, AND 1944

Births, Stillbirths, and Causes of Death	Number Registered—During May 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births (exclusive of stillbirths	5181	**	**	21.1	23.7	20.2
Stillbirths	165	**	**	30.9	30.1	39.2
Deaths (exclusive of stillbirths)	1929	1063	866	7.8	8.6	8.1
Infant Deaths:						
Under one year	212	119	93	40.9	41.3	46.0
Under one month	150	93	57	29.0	26.9	25.8
Typhoid and paratyphoid 1, 2	1		1	0.4	0.4	
Epidemic cerebrospinal meningitis 6	1		1	0.4	3.2	2.0
Scarlet fever 8						
Whooping cough 9	3	2	1	1.2	5.7	2.3
Diphtheria 10	1		1	0.4	0.4	
Tuberculosis, all forms 13-22	89	35	54	36.2	38.6	39.6
Malaria 28	1		1	0.4	1.2	1.2
Syphilis 30	26	5	21	10.6	10.2	9.6
Influenza 33	18	8	10	7.3	7.3	7.6
Measles 35	7	2	5	2.8	0.4	4.0
Poliomyelitis 36					0.8	
Encephalitis 37	2	2		0.8		
Typhus fever 39					1.6	1.2
Cancer, all forms 45-55	179	122	57	72.8	74.8	64.7
Diabetes mellitus 61	30	20	10	12.2	11.0	8.4
Pellagra 69	9	3	6	3.7	3.2	2.4
Alcoholism 77	2	1	1	0.8		0.8
Intracranial lesions 83	196	101	95	79.7	92.8	72.3
Diseases of the heart 90,95	456	263	193	185.5	180.6	176.2
Diseases of the arteries 96,99	18	10	8	7.3	12.2	8.4
Bronchitis 106	3	1	2	1.2	1.6	0.8
Pneumonia, all forms 107-109	70	39	31	28.5	34.6	40.0
Diarrhea and enteritis (under 2) 119	7	3	4	2.8	8.5	6.8
Diarrhea and enteritis (2 and over) 120					1.2	2.4
Appendicitis 121	14	8	6	5.7	6.9	4.8
Hernia, intestinal obstruction 122	14	7	7	5.7	9.0	6.4
Cirrhosis of the liver 124	13	8	5	5.3	3.2	3.2
Nephritis, all forms 130-132	146	81	65	59.4	70.8	63.9
Puerperal causes 140-150	19	8	11	35.5	28.3	32.4
Puerperal septicemia 140, 142a, 147	3	1	2	5.6	13.3	5.7
Suicide 163-164	8	8		3.2	3.7	4.4
Homicide 165-168	33	12	21	13.4	11.4	11.6
Accidental deaths (exclusive of motor vehicle) 169, 171-195	93	53	40	37.8	46.0	42.8
Motor vehicle 170	49	37	12	19.9	10.2	15.6
All other known causes	297	184	113	120.8	142.0	129.8
Ill-defined and unknown causes 199-200	124	40	84	50.4	64.3	69.1

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births, deaths from specific causes per 100,000 population; deaths from puerperal causes per 10,000 total births. All rates are based upon the May report of the years specified.

**Not available.

BOOK ABSTRACTS AND REVIEWS

Man Against Pain, the Epic of Anesthesia. By Howard Riley Raper. Cloth. Price, $3.50. Pp. 337, illustrated. New York: Prentice-Hall, Inc., 1945.

"Gentlemen, this is no humbug!"

Those momentous words, uttered at approximately 10 o'clock on the morning of October 16, 1846 by the distinguished Dr. John Collins Warren in the operating dome atop the Massachusetts General Hospital, announced what, in the opinion of many, was the first successful public demonstration of anesthesia in the long and honored history of the healing and curative art.

Several years before—on March 30. 1842—a Georgia physician-druggist had removed a tumor from the neck of one of his patients while the latter was on an "ether jag," and many Georgians and others contend with great vigor and impressive arguments that, in performing that operation at that time, Dr. Crawford Long had unquestionably won the distinction of being known as the discoverer of anesthesia. But many others, including (and particularly) the author of Man Against Pain, do not agree with them. While freely admitting that Dr. Long was the first to perform an operation while his patient was insensible to pain from deep sleep, Dr. Raper contends that that is not enough to entitle anyone to that great distinction. Says he:

"He (Dr. Long) gave ether only four or five times during the ensuing four or five years. He wrote no paper on the subject, appeared before no medical society with the news, informed no hospital of his discovery, conducted no experiments on himself or animals, sought no help. He used anesthesia, and we might even say that he discovered it in the sense that he found it, but not in the sense that he comprehended its significance and passed that comprehension along to others."

So the author includes Dr. Long among "those who came close" to making this monumental discovery.

After disposing of Dr. Long in this manner, he presents the claims of the three whom he regards as the real contenders for that slice of fame: Dr. Horace Wells, a Hartford dentist; Dr. W. T. G. Morton, a one-time pupil and putative friend of Dr. Wells and, like him, a dentist; and Dr. Charles T. Jackson, a chemist, geologist and physician. The evidence is briefly this:

Dr. Wells saw a man skin his shins while on a nitrous oxide (laughing gas) binge during a Barnum-inspired performance in his home city and was surprised to note that this fellow was entirely unconscious of pain. So he procured some of the stuff, administered it to himself, and, while under its influence, had a tooth painlessly removed by a fellow-dentist. Later, seeking recognition among fellow men of medicine and dentistry, he gave a demonstration upon another person in the Massachusetts General Hospital, in Boston. To all practical purposes, the demonstration was entirely successful; but, serving in the dual capacity of anesthesist and dentist, he apparently quit his first task a little too soon. At any rate, after the tooth was safely out, the patient groaned, as patients do now. He said later the groan had not been due to pain, because he had felt none. But the distinguished audience, skeptical to begin with, insisted upon regarding the demonstration as a failure., And, to stack bad break upon bad break, Dr. Wells became ill soon afterward and could not repair the damage by giving another demonstration that would leave no doubt of its complete success. While he was fighting disease, others went to work.

One of them was the aforementioned Dr. Morton. Deciding to use anesthesia in the extraction of some teeth, he went to Dr. Jackson, the chemist (among other things) to buy some nitrous oxide. But Dr. Jackson told him that sulphuric ether would be better, and he used sulphuric ether in extracting an upper bicuspid tooth for one Eben Frost. Not only did Mr. Frost suffer no pain but he did not even know the tooth was out until later. Following his former teacher's example but hoping for better breaks, he arranged for a demonstration at that self-same Massachusetts General Hospital. The breaks were much better for him than they had been for his erstwhile friend, the demonstration was all he could have asked for, and the eminent Dr. Warren signalized its success in the words that introduced this review.

Dr. Jackson, the third of the author's major contenders for that signal distinction, based his claim upon his suggestion to Dr. Morton that he use sulphuric ether instead of nitrous oxide as a sleep-inducer.

The elimination of Dr. Long from consideration (to the dissatisfaction of his supporters) was about the extent of Dr. Raper's taking sides in the epic controversy which has surged back and forth for about a century. He simply recounts what each of the "big three" (as he conceives them) did and tells the reader to decide for himself who deserves the victor's palm.

Dr. Raper is probably at his best, not in meticulously presenting each of these three men's claims to fame but in telling what the discovery of anesthesia means to surgery and the entire human race. After reading one of the descriptions of a pre-anesthesia amputation and then getting a reader's eye view of a modern operation, one feels like giving thanks for one of the greatest blessings that has ever come to suffering—and I do mean suffering—humanity.

This fascinating story is remarkably well told. Dr. Raper has done an excellent writing job.

John M. Gibson

Pneumoperitoneum Treatment. By Andrew Ladislaus Banyai, M. D., F. A. C. P., F. C. C. P., Associate Clinical Professor of Medicine, Marquette University Medical School, Milwaukee, Wis.; Member, Editorial Board, Diseases of the Chest; Formerly Preceptor in Tuberculosis, School of Medicine, University of Wisconsin, Madison, Wis. Cloth. Price, $6.50. Pp. with 78 illustrations. St. Louis: The C. V. Mosby Company, 1946.

During the past twenty years the treatment of pulmonary tuberculosis has changed so rapidly that many forms of therapy have been applied. Some of these have been abandoned; some have been altered. One form of therapy that has been used is pneumoperitoneum. Because of poor results, this was later abandoned. During the past five years it has gained a great deal of popularity because the indications have been improved upon, and the contraindications have been observed carefully.

Dr. Banyai is one of the pioneer tuberculologists who instigated this form of therapy. His early observations and long studies over many years have now helped in establishing this procedure as one of the necessary methods of therapy in the treatment of tuberculosis.

Pneumoperitoneum is a safe procedure and can be readily adapted to the use of the general practitioner. In this respect it differs from many of the other procedures used in the surgical therapy of tuberculosis.

The indications are numerous, but the method is best used in disease of the lower lobes; in hemorrhage when one does not know exactly which lung it is coming from; in extensive bilateral pulmonary tuberculosis where a bilateral intrapleural artificial pneumothorax does not seem feasible; in patients beyond the age of fifty where the vital capacity must not be altered too rapidly, or impaired; in individuals who have either intestinal or peritoneal tuberculosis accompanying their pulmonary tuberculosis. With these indications there are many cases that can be benefited by this procedure.

The contraindications are shortness of breath, regardless of cause (it is unquestionably an absolute fact that pneumoperitoneum decreases the vital capacity); generalized tuberculosis, amyloid disease, any severe cardiac disease, and that form of peritoneal tuberculosis in which there is plastic exudate so that the danger of perforation of intestine is too great.

Dr. Banyai has recommended the use of pneumoperitoneum in other conditions which are nontuberculous, such as emphysema and asthma. The clinical experience is extremely limited and the results are still questionable.

The most important fact of the entire book is that, in case pneumoperitoneum is to be used, there must be a definite rise of the diaphragm. If this fails to occur, the treatment should be abandoned since the results depend entirely on the elevation of the diaphragm. For this reason, it is the consensus of opinion of many authors, and particularly of Dr. Banyai, that a phrenic nerve operation on the most involved side should be added to the pneumoperitoneum. The results are much better with such a combination.

The monograph has an excellent bibliography and a very good index. The severest criticism of the entire text is the marked repetition of statistics, which in some places becomes almost burdensome. The publishers are to be complimented on the reproduction of the x-rays. The quality of the paper and the excellent reprints are noticeable features and are much to the credit of the publishers themselves.

All in all, for the specialist, the text written by Dr. Banyai should be readily available. For the general practitioner, a rapid perusal should be sufficient to inform him of the possibilities so that cases that can be treated without the specialist may receive some consideration.

Norman Van Wezel

Women in Industry. Their Health and Efficiency. By Anna M. Baetjer, Sc. D., Assistant Professor of Physiological Hygiene, School of Hygiene and Public Health, The Johns Hopkins Hospital. Issued under the auspices of the Division of Medical Sciences and the Division of Engineering and Industrial Research of the National Research Council. Prepared in the Army Industrial Hygiene Laboratory. Cloth. Price, $4.00. Pp. 344. Philadelphia: W. B. Saunders Company, 1946.

Women in Industry was written primarily to provide information on the problem of the utilization of womanpower in industry during World War II. This volume will be even more apropos during the current reconversion period. The text not only presents data on the ability of women to perform industrial tasks but also clearly defines the relationship between occupation and health of female workers. Its outstanding value lies as a reference for those members of management, labor, and the medical profession who are entrusted with the task of selecting and placing women in jobs for which they are physically and mentally qualified.

The enormous wealth of information contained in this book, which constitutes a review of experimental and statistical data in addition to opinions of various authorities, is well arranged in seven sections. Supplementary information is contained in appendixes and a bibliography.

The text is replete with tables and figures of substantiating facts of extreme interest and importance. Some of the topics of unusual interest are:

(1) A comparative study of physiques of women and men and certain considerations which should be made in view of the differences.

(2) A statement of personnel and plant policies in the employment of women.

(3) Factors affecting sick-absenteeism of women, and preventive measures.

Perhaps of great interest to many physicians is the section dealing with gynecologic and obstetric problems associated with women employees. The chapters in this section contain a detailed analysis of the relationship of work and

pregnancy, menstruation, and other gynecologic conditions.

These are only some of the highlights of this text, and are mentioned merely to give some hint as to its abundant storehouse of facts, opinions, and practical recommendations on the countless problems related with the employment of women. The author is to be commended for the logical and concise treatment of such a broad subject. This book should prove to be a worthy addition to the technical library of physicians, industrial hygienists, safety engineers, personnel managers, and others who are responsible for the employment, placement, and supervision of female workers.

A. T. Rossano, Jr.

Squint and Convergence. A Study in Di-Ophthalmology. By N. A. Stutterheim, M. D., State Medical Qualification, Holland; Formerly Surgeon to the Eye Clinic, University, Leyden; Part-Time Ophthalmic Surgeon to the Johannesburg School Clinic, Education Department, Transvaal. Cloth. Price, 15 shillings. Pp. 95, with illustrations. London: H. K. Lewis & Co., 1946.

This is another of a series of three monographs by this author on the subject of allowing the power of convergence an opportunity to come into its own in the treatment of squint, eyestrain and asthenovergence. The treatment the author has instituted, using a battery of prisms, he has called the "kinetic treatment" of eyes.

Probably the most important feature of this monograph is the statement that "no child, henceforth, should leave the primary school a squinter." This is emblazed on the cover sheet and emphasizes that there are no good reasons why children should be allowed to mature with "crossed-eyes." American ophthalmologists teach that it is almost never too young for the child to begin treatment, orthoptic and surgical, in order to correct a squint. All should be treated, with resultant "straight" eyes.

The contents are entirely technical and for the specialist in this field of endeavor. The book is of no value to the general practitioner or layman. Its contents are composed of an introduction, description of strabismus or squint, treatment of squint with the author's combined methods of orthoptics and surgery, and an appendix describing the author's equipment.

The author's theme is that adequate treatment of squint is to be physiologic and that should be the "kinetic treatment" with a battery of prisms. Experiences have confirmed the author's belief that concomitant strabismus, like eyestrain, is a disorder of the visual brain, due to insufficient action of the center for convergence, nucleus of Perlia, in the midbrain. Again he stresses the development of the macula of the eye showing that it is only at the fourth month after birth that fixation of the visual axes is possible. He concludes that the real source of all concomitant squint is to be found in the first year of life. He refers to the bifoveal eye as di-ophthalmos and again states that convergence is involuntary; emphasis is placed on bifoveal correspondence or single binocular vision, as well as cosmetic parallelism of the visual axes.

In the treatment of squint the monograph summarizes case histories which number 97, but the majority of these cases are in children ten years of age to adults of sixty years. Only an occasional case of a child six years of age is described. He combines treatment with prisms, called "kinetic treatment," with surgery, tenotomies and folds of the Tenon's capsule about the involved muscle. Technics differ in this country but obtaining a satisfactory result, as he claims for his cases, is all that is essential.

This much can be said for the monograph and its author. England pioneered much of the work in orthoptic correction of squint; it has very definite value. The author's religious belief and practice of the extension of the range of convergence is good treatment, when it works, in aiding the correction of strabismus. The monograph is voluminous for the "pearls" it contains, but offers the eye specialist only more reading matter of moderate value.

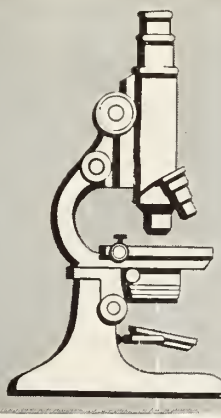
Karl B. Benkwith

Sex Problems of the Returned Veteran. By Howard Kitching, M. D. Foreword by Ernest R. Groves, Professor of Sociology, University of North Carolina. Cloth. Price, $1.50. Pp. 124. New York: Emerson Books, Inc., 1946.

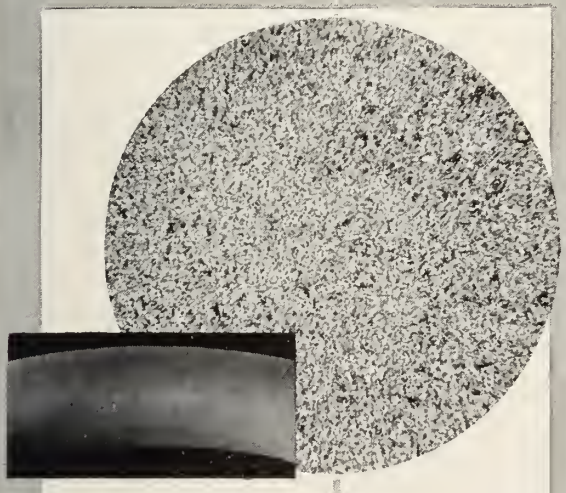
The success of any marriage is based on the efforts of both parties to fuse their personalities so that the couple rather than either individual becomes the unit. Even under normal circumstances there are many difficulties to be overcome before a marriage can become a success, but in the case of those who, within a comparatively short time after marriage were separated for long periods because of the war, the problem of taking up their married lives together again is far more difficult. During the period of separation, the man has lived close to death, has witnessed suffering and cruelty, and has been racked both by a physical yearning for the wife he has left behind and by the need for the emotional stimulation of her love. The wife left at home takes on additional responsibilities, earning a livelihood or looking after the children, and grows considerably in her understanding and ability. When the reunion occurs each is likely to have idealized the other or to have expected to find him or her the same as when the separation began. If the marriage has not been a complete success before separation, the readjustments demanded often become insurmountable.

This book by Kitching has been written as a guide to those who, after separation, have returned home only to find their ideals of a happy marriage gone on the rocks. Dealing with the subject in a frank and matter-of-fact manner, the author has given many suggestions which should be of great help to many a veteran and his wife. The physician who is consulted by these puzzled young people will find this volume a practical guide to be placed in the hands of those who need advice along these lines.

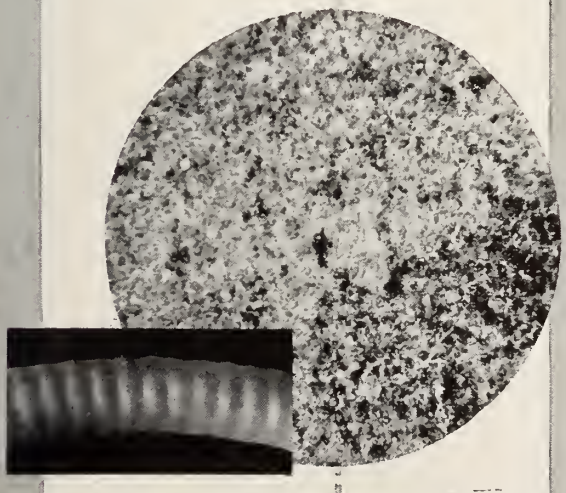
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Miscellany

X-RAYS STILL RATED SUPERIOR IN FIGHTING SCALP RINGWORM

A countrywide epidemic of ringworm of the scalp has focused the attention of four groups of investigators on the most effective method of treatment. Their respective studies, appearing in the September 14 issue of The Journal of the American Medical Association, single out x-ray treatment as superior to all other forms.

Another point of agreement among the four separate groups is that the infection predominates among boys. This was traced to the barber shop where infected clippers were found to have caused the trouble.

565 CHILDREN FOUND INFECTED

Between 1944 and 1945, the Dermatoses Section of the U. S. Public Health Service was asked to aid Hagerstown, Md., health officials because of the prevalence of ringworm of the scalp among school children. During this period 8,657 children were examined, of whom 565 (479 boys and 86 girls) were found to be infected. Approximately the same number of boys as of girls were examined, yet there were six times as many boys infected as there were girls, according to the investigations of:

Louis Schwartz, M. D., Medical Director, Samuel M. Peck, M. D., Medical Director (R), Isadore Botvinick, M. D., Surgeon (R), Armond Leo Leibovitz, M. D., P. A. Surgeon (R), and Elizabeth S. Frazier, Litt. B., Associate Statistician, all of Bethesda, Md.

"Approximately 65 per cent of the boys had the infection in the 'clipper area' only; 31 per cent of the boys had the infection in the 'clipper area' and other portions of the head, and four per cent had the infection on the crown of the head only," the article states. " 'Clipper area' includes those portions of the head which are in contact with clippers during barbering. This seems to indicate that the clippers were the main source of infection and that combs and brushes played a comparatively minor part. The infection among the girls was always in the area of the part of the hair."

X-RAY REMOVAL OF HAIR EFFECTIVE

Although these authors recognized that x-ray removal of the hair was the most effective treatment, they were unable to use this method of therapy "because in most communities there were not sufficient x-ray units and technicians to give proper epilation doses to the unusually large number of children infected."

Therefore, the authors used three ointments which proved satisfactory, with the result that of the 565 children infected, 493 of whom were treated in the U. S. Public Health Service clinics, 48 were cured by manual removal of the hair with one or two treatments; 274 were cured with topical medication; 126 discontinued treatments before being pronounced cured; 45 were under treatment at the close of the study period, 38 of whom were subsequently cured.

Another article appearing in The Journal, presented by Albert Strickler, M. D., Medical Director of the Hersch-Razel Research Foundation, and Medical Director of the Skin and Cancer Hospital of Philadelphia, recommends that ringworm of the scalp be treated with a special iodine combination and dilute acetic acid.

Dr. Strickler states that in a series of 115 children thus treated for this infection, 74 or 64 per cent were cured. The patients were mainly boys and varied in age from 15 months to 11 years.

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BACKGROUND

OVER THREE DECADES OF CLINICAL EXPERIENCE

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Vol. 16 November 1946 No. 5

ALABAMA POSTWAR PLANNING

A SYMPOSIUM

PART I

THE SITUATION

M. S. DAVIE, M. D.
Dothan, Alabama

Anne Lindberg's "Listen! the Wind" has a chapter titled "Pieces of A Puzzle," from which I quote: "All must be fitted together to one aim, our crossing the Atlantic. There must be some way to do it easily. ('Don't use force—they all slip in easily, once you know the combination,' says the Almighty being who hands you the separate pieces.) And sometimes the chief difficulty seemed to be holding all the pieces in your hands at the same moment. If only you could see them all clearly at once it would not be hard to make the pattern correctly."

American Medicine has been "crossing the Atlantic" a long time, but at last we are beginning "to make the pattern correctly."

It has been said that "Man's inhumanity to man makes countless thousands mourn," but it is equally true that man's effort to cushion the facts of life and establish various types of utopianism has wrought much disaster. The ancient decree that "man must earn his bread by the sweat of his face" has never been revoked. There are certain facts of society that are clearly defined and which require collective effort. Our public health system is an illustration. But socialism in medicine should not go beyond public health and indigency. The moral fibre of man, his most priceless asset, cannot withstand the luxury of unearned increment. In fact, there is no such thing, except for a season. The price is always there, and someone has to pay. Man is a unit, and can only survive as such. Manipulation with any of the isms—communism, fascism, naziism, or socialism—brings ultimate ruin. Statism, beyond such exigencies as war and famine, is a crucifixion of the concept of our founding fathers and spells delayed dictatorship and succeeding totalitarianism. This is language you thought had been marked as obsolete in the lexicon of America. Ulteriorism and disruptive agencies have never been more active than today. Go to Washington, which is the tower of Babel up-to-date, and you will find outstretched hands to Uncle Sam from forty-eight commonwealths accompanied by voices shouting, "Pass the biscuits, Pappy."

In 1776, one of the founders of American Democracy wrote: "Some writers have so confounded society with government as to leave little or no distinction between them; whereas they are not only different but have different origins. Society is produced by our wants and government by our wickedness; the former promotes our happiness *positively* by uniting our affections, the latter *negatively* by restraining our vices. . . . Society in every state is a blessing, but government, even in its best state, is but a necessary evil; in its worst state an intolerable one. . . . Government, like dress, is the badge of lost innocence." Since "nothing but Heaven is impregnable to vice . . . the inability of moral virtue to govern the world"

Read before the Association in annual session, Birmingham, April 17, 1946, as a part of the report of the Association's Postwar Planning Commission—the entire report constituting a symposium published in this number of the Journal.

is beyond controversy. Likewise, "the design and end of government is to furnish freedom and security." In other words, to quote supreme authority, "The sabbath day was made for man and not man for the sabbath day." Therefore, the resources of our government should be made available for man under option and not compulsion.

In the language of Churchill, we say to our government, "Give us the tools and we will do the job." The tools we are asking for at this time are (to enumerate a few) money to build, equip and operate hospitals; educational and clinical facilities for the physicians of today and tomorrow; institutions for our mental invalids; money for scientific research and development; and all of this without federal or state dominance or bureaucratic interference.

It has been reiterated of late that science is the imperative of survival, and this is true. But the word science is usually applied to materialisms or tangibles, whereas the science which should have priority is that of the intangibles; particularly the science of conduct and good-will. Kant says: "Nothing can possibly be conceived in the world, or even out of it, which can be called good without qualification, except a good-will." Sell the public thoroughly on the good-will of American Medicine and the present battle is half won. This good-will must be convincingly demonstrated by concrete things, and not merely lip service.

Study the intricacies of American Medical Association officialdom and you will see that we have the machinery to do the work: eight Councils and 5 Bureaus. I am especially interested in the Council on Medical Service and Public Relations. We should sell the public through this Council and never grow static. Isaiah's technique of pedagogics is classical: "For precept must be upon precept, precept upon precept; line upon line, line upon line; here a little, and there a little."

I suggest that our AMA establish a Bureau of Scientific Research and Development. A McKenzie for penicillin is fine, and it enabled him to save the life of the man who held the fort at Dunkirk, but just think how much earlier we should have had penicillin and how many more antibiotics we should have had before now.

Our work is just beginning. American Medicine has been robustly busy attending to the technical details of its own scientific bailiwick, expecting a full measure of understanding by the proletariat. The record amply discloses a marvelous piece of work. But the communists, bureaucrats, unmercifully high-pressured politicians and various brands of ulteriorists have conceived the idea that they may ballast their objectives by the advocacy of Socialized Medicine. The tragedy of the situation is the inertia, unalertness, indifference and ignorance of our physicians as to what has happened, is happening and is scheduled to happen to our profession. This time, as Churchill said in Missouri, "We must make sure that work is fruitful, that it is a reality and not a sham, that it is a force for action and not merely a frothing of words."

The people of these United States have a right to expect and require that their physicians cause to be erected, established and equipped the best hospitals that knowledge and science can provide at this time. They have a right to expect and require that their physicians make these resources available to each and every one of them in a practical and forthright manner. They have a right to expect and require that all of these things shall be done within the framework of a democracy thoroughly defined by Tom Paine's article entitled Common Sense and bestowed upon us by Thomas Jefferson's Declaration of Independence.

It should never be necessary for scientific medicine in America to fight for its life again. Complacency nowhere should be allowed. Our Council on Medical Service and Public Relations should be fully supported and promptly advised at all times. See what happened in England, the cradle of modern civilization, which has allowed a group of political crackpots to throw her magnificent hospital and medical service to the dogs. It will probably take a century to repair this damage. The moral and intellectual ineptness has produced a stain which time cannot efface. You say it cannot happen here! Anything can happen anywhere. The March 30 issue of Labor has an editorial on "Medical Care for Britons" which says: "British Labor appears to have made up its mind that from now on the 'plain people' must have adequate medical care."

Elmer Davis, reviewing "One World or None," says: "The common characteristic of most of these chapters is a terrifying unawareness of politics, of the difficulty of getting things done in a field more complex than nuclear science." No man has a better background than he for making such a statement. There is no problem in Euclid quite so difficult. The key to this equation is not intelligence but good-will. Have our Council on Medical Service and Public Relations win the good-will of all our people by concrete examples of service, uniform and unfailing, delivered with a smile builded from the inside.

Militantly organize available machinery everywhere. An article in the AMA Journal of February 13 states that: "By the American system of government, the ultimate decision must rest with the Congress of the United States." It is agreed that a free society cannot function without the facts. Give the facts to all of the voters with such tact and diplomacy and thoroughness that they will pass them on to the Congress as being the imperative of the future existence of the individual Senator or Congressman. But do not high pressure or browbeat the Senator or Congressman. Just feed them facts in all of the multitudinous processes of citizenship, so that they shall be interwoven into the warp and woof of the fabric of their political existence.

An anthropologist has said that the last thing which a dweller in the deep sea would be likely to discover would be water. He finds this out when there is no more water. This is the discovery that the sick people of England are about to achieve.

The 125,000 physicians of the AMA must learn the signals, watch the ball and keep the score hereafter. Let medicine and its friends develop correct disciplines of thought and public health, then sickness and disease will receive all that it is entitled to without disrupting our liberties or privileges and all within the framework of our democracy.

I close with a revision of some points previously given.

1. Equipped medical centers or hospitals in each county or groups of counties of the State under local control.

2. All qualified and professionally approved physicians to have the privileges of these institutions on a non-preferential basis.

3. That the public shall likewise have the privileges of these institutions when represented by reputable physicians.

4. That each of these units, small or large, shall be affiliated with our base hospital.

5. That cases requiring specialists and equipment only found in our base hospital shall be transported to it.

6. That these county units shall meet the correct standards applicable to them.

7. That these county units shall have some rotary teaching system established with our four-year medical school by which they will receive instructions from this source pertinent to the advances of medical science and the implementation of the same.

8. That the nursing system in these local units shall be worked out by the various appropriate agencies under the supervision of the Board of Censors.

9. That the principles of Number 7 shall apply to the nursing situation and be enlarged to include the proper training of the nurses in the county units.

10. That our Alabama prepayment insurance law shall be inclusive for hospital and patient.

11. That our Alabama population so economically circumstanced that the prepayment insurance plan is impractical for them shall have the privileges of these medical centers or hospitals, without stigmatism, through suitable methods instituted by the county of residence.

12. That, while all of these rules, regulations and laws shall fully comply with the established standards pertinent to the matters involved, there shall be no regimentation or compulsion anywhere and compliance shall be optional.

Penicillin in Syphilis—The evaluation of penicillin in the treatment of patients with syphilis is still going on and must continue for several years more before concrete deductions may be made as to its actual value. Penicillin has the following advantages: It produces few reactions and it can be given in a short period of time. The need for hospitalization for a week or ten days and injections given at two or three hour intervals are its disadvantages. It may be that penicillin in beeswax and peanut oil will overcome these objections.—*O'Leary and Kierland, J. A. M. A., October* 26, '46.

ALABAMA POSTWAR PLANNING

A SYMPOSIUM

PART II

VOLUNTEER PREPAYMENT INSURANCE

C. A. GROTE, M. D.
Huntsville, Alabama

This paper is being presented as a part of the report of the Postwar Planning Commission. I shall attempt to make it brief, but in doing so I want you to know that the Commission spent many months in a tireless effort to find a partial solution to some of Alabama's medical care problems. We traveled into distant states and tried to see what others were thinking and what others were doing. We have written exhaustive reports and finally came to some very definite conclusions.

During our early meetings and studies, we became aware that there existed throughout America, and still exists, a revolution in medical practice. Medicine in the United States has become a social problem because the conscience of the people has made it so, just as it has made social problems of food, shelter and jobs. It has been found, from surveys made throughout the country, that national opinion on medicine has been divided into three groups:

(a) The standpatters, who want no change from the past.

(b) The advocates of compulsory reform by federal legislation.

(c) The advocates of voluntary reforms by cooperative groups.

The War staved off this conflict over medicine. About one-third of the medical profession joined the armed forces, and other serious problems at home overshadowed the issue. But we sincerely believe that had it not been for the War some form of federal medical legislation might have already been forced upon us. We believe the postponement gave us time to endeavor to prevent this conflict. As a Commission we were unanimously and vigorously opposed to the Wagner-Murray-Dingell Bill. We became convinced the Bill would not do what it proposed to do but on the other hand would make bad matters worse. In short, we believed it would be a colossal error if enacted into law. But we were also convinced that this type of legislation would not stay pigeon-holed long if we the doctors all became stand-patters, and did not try to solve some of the glaring defects in medical care and the distribution of medical personnel.

But, someone asked, why this protest? Are there any real reasons to find fault with the way medicine is practiced at the present time? Our Commission came to the conclusion that, as good as we are at present, certain trends in medicine for the past many years have brought us face to face with two serious problems. The first of these is a distribution of doctors throughout the country; and second the cost of what we today think is adequate medical care, and more especially the cost of catastrophic illnesses. Every survey that has been made has shown that doctors, especially young doctors, were leaving the rural districts and flocking to the larger centers of population. The larger the cities the greater the flock. For instance, in 1940-41, Alabama, with 2% of the national population, received only 1/3 of 1% of the newly licensed physicians, while New York state, with 10% of the population, received 18% of the newly licensed physicians. To bring this problem closer home—right here in Alabama—not a single county has what is now considered an adequate number of doctors, one doctor to each 1,000 people. The nearest approach to this is in our larger cities, while in Cleburne County, with 13,000 population, there are only two doctors and both are more than 65 years of age. In many counties in Alabama there is only one doctor to 5,000 or 6,000 people. This trend is not recent; it has been in progress for many years, and why? Mainly because young well educated doctors must have well equipped hospitals in which to apply the training they are receiving today. These young doctors are not going back to the crossroads of Alabama, and this is one of our very serious problems. The U. S. Public

Read before the Association in annual session, Birmingham, April 17, 1946.

Health Service has attempted to subsidize doctors to induce them to locate in the rural districts but it is our understanding this has been a failure. With our new Medical School in Alabama producing more doctors for the State, we are convinced this will help. But our Commission came to the definite conclusion that we need more hospitals in Alabama, especially small institutions.

Our next major problem was the cost of medical care. Every survey that has been made has claimed to show that a large percent of our population is unable to pay for medical care. Many of these studies showed that people could pay for ordinary illnesses but not catastrophic illnesses involving operations and hospital expense. In 1935-36 a national health survey was made by the Federal Government. At that time the conclusions were that 90% of the people in the United States were unable to pay for adequate medical and hospital care according to the usual fee-for-service method. I know this percentage was far too high and especially for these latter years. But we as a Commission became convinced there should be some way to spread the cost of medical care.

We became very much interested in trying to accomplish this through some form of prepaid insurance or service plan. We presented this Commission a study of an insurance plan that was then in force in one of the large cotton mills in the Huntsville Area. Since that time the second large cotton mill has taken this same plan of insurance for all of its employees, and the third one has such a plan under consideration. The coverage is written by a large old-line company. It pays the hospital bill of a worker and his dependents; it pays the worker a small amount for the loss of his time; it pays a certain amount on the doctor's bill; and it allows the patient to choose any doctor he desires. Every member of the Madison County Medical Society does some of this work, and to date both doctors and patients have been well pleased with the plan. Feeling that it was just possible to have some such plan spread over the entire State, our Commission appointed a subcommittee to study the problem. Dr. Austin went to Michigan and studied the plan there. Dr. Cannon went to Chicago and through the offices of the American Medical Association studied many plans, including that in operation in California. Dr. McNease and I went to Washington, Delaware and New York. Our joint conclusions were that nowhere has this problem been satisfactorily solved, and yet everyone we met felt we must attempt to work out its solution. In Wilmington, Delaware, we became enthusiastic over a Blue Cross Plan which, in addition to hospital insurance, offered surgical and obstetric service in hospitals. In New York City, we got an inspiration from Dr. Horan of the Metropolitan Life Insurance Company. Dr. Horan was definitely of the opinion that such insurance as is now offered by a great many of the old-line insurance companies is well suited for corporations who employ a great many people and who will make payroll deductions for the premiums of such insurance from the earnings of the employees. He was of the opinion, however, that the cost of this insurance was too high and the best approach was through a non-profit plan such as is offered in New York City by the Blue Cross, just as in the State of Delaware. We further found that in at least eighteen states prepaid medical care plans have been inaugurated, and now some 20 million people have hospital insurance and more than 5 million have insurance to cover surgical and maternal care in hospitals.

Our attention was then centered on what we already had in our State in our stepchild, The Alabama Hospital Service Corporation. This is a non-profit organization which has been active less than ten years. It is a going concern, financially sound, and strictly on a non-profit basis. It has 150,000 certificate holders. We decided to seek partnership for the medical profession in this organization. We had the unanimous approval of the State Board of Censors of the State Medical Association in inaugurating the plan. However, we had to have an enabling act of the Legislature which would permit us to write a non-profit type of medical, surgical and obstetric care. We had this amendment to the Alabama law passed during the last Legislature. We have now been taken into partnership with Hospital Service Corporation, and six members of the State Medical Association have been appointed by the State Board of Censors to serve as trustees of the Corporation. I am sure that members of the Association are aware that Hospital Service is now offering not only surgical and

maternal care in hospitals but also medical service in hospitals, and we now have more than 20,000 certificate holders for such care.

We as a Commission are delighted with this plan for the following reasons:

(a) It is a non-profit organization.

(b) It permits the certificate holder to choose any licensed doctor in the State of Alabama to render such service.

(c) It does not attempt to fix surgical, medical or obstetric fees, but it does pay the doctor rendering the service a stated amount on his bill.

(d) In our opinion it gives the certificate holder more for his money than any plan we know of.

(e) It will permit in the future the issuing of a certificate to cover house calls, if the above plan proves a success, and if we can devise some plan by which house calls are made actuarilly sound.

Our Commission realizes that neither the establishment of adequate hospitals nor the adoption of a prepaid medical care plan will provide for the medically indigent. We insist that these people must be taken care of by the State, the counties and the cities, with such help as is given by the Federal Government. But we insist that the insurance scheme holds the key to this problem. For instance, the Farm Security Administration subsidizes its members and helps them to buy farms, build homes, buy fertilizer, and food, and nobody is asked to sell to these people at a reduced price. Our point is, why not buy this type of medical prepayment insurance for such people? However, we insist all this should be under State control rather than federal.

We know perfectly well that these plans are not going to give adequate medical care to every man, woman and child for many years to come but neither can we visualize the Federal Government, with all the billions of dollars it plans to appropriate for this purpose, giving comprehensive and complete medical care to every man, woman and child for generations yet to come. But the Blue Cross Plan as is now working in Alabama is a partial answer and will grow with the years. It is growing all over the Nation. The following is taken from Time Magazine, March 11, 1946:

"The fastest growing experiment in the United States in social medicine is the Blue Cross, a nation-wide organization with the laudable purpose of helping members meet hospital bills in advance. Blue Cross operates through 3,500 hospitals in 44 states, has more than 20,000,000 members. The State of Rhode Island has more than half of its population covered by hospital insurance. This phenomenal growth has been within the last decade." Time adds further: "As an obvious and partial answer to socialized medicine, Blue Cross has worked well. As membership increased, benefits have been raised. Some chapters have added plans to prepay doctors' bills as well. All that can seemingly stop Blue Cross from snowballing still more is state-controlled medicine."

Because of our wonderful plan of medical organization, Alabama has developed a health service surpassed by no other state. In developing this health service, the medical profession was the leader. This same medical organization is helping develop the University of Alabama Medical School. We believe we have planned for Alabama a system of state and county hospitals with a plan for prepayment of medical care that, as it develops, will redound to the credit of our profession. We believe, if we have the genuine cooperation of the medical profession, that these plans will succeed and make any proposed form of federal medicine unjustified. We realize our plans for the future are just a beach-head—but beach-heads are necessary.

Penicillin in Cardiovascular Disease—The daily dosage of penicillin and duration of treatment must vary from patient to patient, but certain general principles can be outlined. At least two to three weeks of uninterrupted therapy should be given; the daily dose should be that which attains average blood levels of four or five times the amount required for in vitro inhibition of the infection strain. For the average patient, this dose will be between 500,000 and 1,000,000 units per twenty-four hours. If the organism is unusually resistant to penicillin or if relapse occurs after such a course of treatment, much larger doses may be required. As many as five or six relapses have occurred in a few patients who have eventually been cured and returned to useful active lives. The point above all others which deserves emphasis at this time is that hope of cure should not be abandoned under any circumstances unless the complications of the disease, such as incapacitating heart failure or cerebral embolization, render the patient clearly beyond repair. Doses of penicillin as high as 20,000,000 units a day have cured the infection of some patients in whom many months of therapy with from 2,000,000 to 10,000,000 units daily has failed. —*Chamberlain, J. Arkansas M. Soc., Oct. '46.*

ALABAMA POSTWAR PLANNING

A SYMPOSIUM

PART III

ALABAMA HOSPITALS

B. F. AUSTIN, M. D.
Montgomery, Alabama

The Postwar Planning Commission of The Medical Association of the State of Alabama and the State Planning Board, in cooperation with the Alabama Hospital Association, obtained information on all hospitals in the State in the early part of 1945. This information was secured from hospitals not approved by the American College of Surgeons as meeting unconditionally its minimum standards as well as those that have been approved. It was found that Alabama had eighty-three hospitals in 1945, exclusive of those operated by the Federal Government, tuberculosis sanatoria and other institutions devoted to special diseases and conditions. Those eighty-three were found to have a total of 5,633 beds, making available to the people of this State an average of 2.07 beds per 1000 population. Even when all beds are included, the Alabama average is less than half that of 4.5 beds per 1000 population recommended by the American Hospital Association as being required to render adequate hospital care. It is known that some of these hospitals are substandard, but it would be impossible to determine the number of substandard hospitals without an intensive study and critical examination of each hospital. The limitation of personnel has made this impossible to date.

The following quotations are taken from the publication, "Health and Medical Care in Alabama," which was prepared by the Alabama State Planning Board in cooperation with the Postwar Planning Commission of the State Medical Association and the State Health Department:

"Hospitals probably constitute the most important single factor in the health picture of a state. Not only do they provide for the care of the sick, but also they attract physicians and nurses. They often become medical centers for public health services and education and they act as a focus for medical services. Thus the absence of adequate hospitals is apt to mean that a community will lack sufficient doctors and nurses and that other medical services will be inadequate.

"Alabama possesses far from adequate hospital facilities. The need is great for all types: general, mental, tuberculosis and nursing homes and other specialized types; and as this need is relieved the supply of physicians will increase and gradually the health level of the State will improve.

"County lines do not serve as boundaries for hospital services, and most hospitals will serve many people across county lines and in some cases across state lines. For example, Dale County has no hospitals, and, therefore, according to the table there are no beds available. However, Houston County, which adjoins Dale, has three hospitals in the corner of the county nearest Dale. The bed ratio for the State as a whole is not so greatly affected by this condition, although nearby hospitals in neighboring states may provide facilities for some residents of bordering states.

"The location of existing hospitals indicates twenty-five counties which are completely without hospital facilities. All these are relatively rural and would find it more difficult to support a well equipped hospital than would some area where population was concentrated. Despite the absence of hospitals in these counties, there is a very small part of the State where hospitals are further than twenty-five miles away. This indicates that the geographical distribution of hospitals is fairly adequate in most parts of the State, but does not mean that the quantity and quality of hospital beds are adequate.

"At present many Alabama hospitals are small proprietary institutions owned, in most cases, by a physician. There is no system of hospitals in the State nor is there any integration of the existing hospitals. Such a haphazard situation obviously cannot provide the best medical care for Alabama's people. A well planned, integrated system of hospitals is needed.

"In view of the foregoing description of hospital conditions in Alabama, it is obvious that increased facilities are necessary and that these should conform to a master plan. The development of a master plan of hospitals is merely an attempt to systematize the hospitals in Alabama and to provide for orderly growth in a manner which will best fill the urgent needs of the population. A master hospital plan should be a flexible instrument; it should serve as a guide. As conditions change, the plan should be altered.

"One prerequisite for formulating a master plan for general hospitals is the establishment of a standard of adequacy. Most authorities in the field of medicine and public health consider 4.5 beds per 1000 population as a minimum standard of adequacy. Some authorities modify this to

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provide 4.5 beds in urban places of 10,000 population or greater and 3 beds in rural areas and places of less than 10,000 population. In view of the low income level which prevails in Alabama, it seems realistic to lower the standard of 4.5 beds to 3.5 beds per 1000 persons.

"A master plan for general hospitals in Alabama embraces a framework composed of one base hospital, seven regional hospitals, many district hospitals and a number of health centers. The base hospital is the facility to be located at the State Medical College and to provide all types of medical service, including complete diagnostic and research facilities. This is the main teaching hospital. Highly specialized cases, such as those requiring brain surgery, would be handled at this facility. Regional hospitals are to serve a region embracing several counties and should provide all types of hospital and medical services, including complete diagnostic facilities, and should also provide for certain simple training facilities. Rare and exceptionally difficult cases received at a regional hospital would be referred to the base hospital. In addition, the staff members of the regional hospital should act as consultants to the staff of the district hospitals in certain specialized branches of medicine, for example, roentgenology, and pathology. Moreover, clinical consultants from the regional hospital should frequently visit the district hospitals and hold clinical conferences. The district hospitals as envisioned in the master plan are those facilities directly serving the great majority of the people. These hospitals should provide for normal and emergency surgical, obstetric, medical, x-ray and laboratory services.

"The fourth essential element of a master hospital plan is that of health centers. These centers with a small number of beds should be provided in rural areas of sparse population and should include facilities for maternity service and emergency surgery. Limited laboratory and x-ray services might be made available with appropriate supervision of, and assistance from, the district hospital. This unit of the plan is a relatively recent concept and, although regarded very favorably by medical and public health authorities, it is unwise to be too arbitrary at this time in making recommendations regarding size and the extent of the services which health centers will provide. These decisions will best be made after experience in their operation and it is therefore advisable that their early development be rather slow.

"The Alabama standard of adequacy next needs to be divided among the essential elements of the master hospital plan. Using the Alabama standard of 3.5 beds per 1000 population, this total ratio has been subdivided somewhat arbitrarily as follows:

"0.5 beds per 1000 population for the base hospital.

"0.5 beds per 1000 population for the regional hospitals.

"2.0 beds per 1000 population for the district hospitals.

"0.5 beds per 1000 population for the health centers."

NURSING HOMES

It is exceedingly difficult and frequently impossible to plan satisfactorily for the care of the chronically ill. This is due primarily to lack of facilities, both public and private, and the high cost of care in the few private institutions in Alabama. The problem of providing nursing care for the chronically ill, therefore, is of grave concern to all individuals, agencies and levels of government having any responsibility for this group. In this group we think of those persons who, because of infirmities of age or other illnesses, cannot be cared for in private homes and are not subjects for care in the State hospitals for the mentally sick or in tuberculosis sanatoria. A recent survey made by the State Department of Public Welfare through the sixty-seven county welfare offices revealed that there are more than 5000 persons in Alabama in need of institutional nursing care but are not receiving it because of inadequate facilities. There are no known public institutions for the chronically ill. There are many patients presently at the State Hospitals for the Insane who should be in nursing homes instead, if such institutions were available.

The Federal Social Security Act provides grants-in-aid, on a basis of individual need, for people who might be cared for in their own homes. No federal funds, therefore, are available under the terms of the Social Security Act to people living in public institutions.

The high cost of care and the limitation of private institutions in Alabama definitely prevent such facilities from ever being the sole answer to the problem. Twenty-four known private institutions offer care to adults in the State. They have a combined capacity of 571 and many of them are not available to bed-ridden individuals.

The 1945 session of the Alabama Legislature designated as "urgent need" the construction of two nursing homes and named $600,000 to be used by the State Building Commission for that purpose. Funds from S. 191 (Hill-Burton Act) may also be used for building nursing homes; and when the appropriation is made available from that source it is planned to begin construction.

MENTAL HOSPITALS

Public institutions for treating mental illness in Alabama are maintained by the State

at Bryce Hospital, Tuscaloosa, for white patients, and Searcy Hospital at Mt. Vernon for Negro patients; and the U. S. Veterans Administration near Tuscaloosa for white patients, and at Tuskegee for Negro patients. The capacities of these institutions are being enlarged but difficulties are sometime experienced by ex-service men in gaining admittance to these hospitals. Efforts are then exerted by families and physicians to get them admitted to the State hospitals.

The capacity of each of the State institutions is constantly taxed by the demands of normal times and the war-time demands have made it impossible to care for the civil population needing this type of institutional care. Fortunately, the 1945 Legislature of Alabama made available to the Building Commission an amount of funds marked "urgent need" to make it possible to construct some imperatively needed buildings at the State hospitals. Some of these are now being constructed and contracts are to be let for others at an early date. Although these added buildings, plus authorized renovation and repairs, will not furnish all desired facilities for treating Alabama's mentally ill, they will improve the situation considerably. When federal funds become available through appropriations made possible by the passage of S. 191, the mental hospitals of the State will be eligible for aid from that source.

TUBERCULOSIS HOSPITALS

The eight tuberculosis sanatoria in the State have a total of 520 beds owned by local counties or private associations, whereas more than three times this number of tuberculosis hospital beds are needed to meet adequately the needs in the control of this disease. A subsidy of $1.00 per day per patient is provided by the State to aid in the maintenance of these hospitals. The State Department of Health is also in position to aid them by the assignment of personnel. The Act passed by the State Legislature in 1945 authorizing aid for construction and equipment of district tuberculosis sanatoria is described later in this paper.

STATE HOSPITAL LEGISLATION

The 1945 session of the Alabama Legislature passed two Acts relating to hospitals which are of interest to the medical profession as well as the general population. They are: Act 211 (General Hospitals), approved July 7, 1945; and Act 287 (Tuberculosis Sanatoria), approved July 9, 1945.

Act 211 authorizes the State Board of Health to serve as the state agency to receive federal or other funds, and to acquire, construct, equip, maintain, and operate public hospitals, health centers and related facilities for the treatment of any type of disease; to set up a master hospital plan by which the State would be divided into regions, districts or zones, such divisions to be subject to whatever future revisions and changes may be found necessary or advisable; to license hospitals coming under this plan; to obtain or dispose of property; to contract with local governing bodies for the purpose of building and equipping hospitals; and to establish and maintain such additional bureaus or divisions as may be required for carrying out the measure's objectives.

An Advisory Council is required to approve all policies and regulations for carrying out the objectives of the Act. Membership of this group will consist of three hospital administrators, or persons with broad experience in the administration of hospitals, to be appointed by the Alabama Hospital Association or by the Governor, in the event the Alabama Hospital Association fails to exercise this privilege; one member to be appointed by the State Board of Censors of The Medical Association of the State of Alabama from among its own membership; four lay members, with broad civic interests representing varied segments of the population, to be appointed by the Governor; the State Health Officer; the State Director of Public Welfare; the Director of the State Planning Board; the Director of Finance, and the Attorney General. The State Health Officer shall act as Chairman of the Advisory Council.

Authorization is given any one or more local governing bodies in any of the regions to be designated by the State Board of Health to call and give publicity to a public meeting at which citizens may express themselves regarding a proposal to form a hospital association. If opinion expressed at that meeting is favorable, the governing body or bodies will determine whether such an association shall be formed. Whereupon, an appropriate resolution or ordinance shall be passed and the local governing body shall

appoint one member to represent each precinct or ward included within the jurisdiction of that governing body as a director of the association.

The directors of the hospital association choose a chairman from their own number and serve for a period of five years; apply to the Secretary of State for a certificate of incorporation; serve without compensation; meet annually, and must be governed by a constitution and by-laws; select an executive committee of not less than five nor more than nine members from among their own number to have active direction of the association's affairs. The executive committee must meet monthly, and is empowered to appoint a medical advisory committee of from three to five members from the medical staffs of the hospitals in the area to be served by the association, this committee to be responsible for the professional aspects of the hospital's operation, subject to the rules and regulations of the State Board of Health. Thus organized, the hospital association will be empowered to apply to the State Board of Health for authority to enter into a cooperative contract with the Board for the purpose of constructing, maintaining and operating a hospital and to act as the representative and agent of the State Department of Health in the construction and operation of the hospital.

The measure authorizes the local governing bodies of each political subdivision participating in the hospital construction program to appropriate for constructing, equipping and operating public hospitals. It also provides that such funds shall be paid into the treasury of the hospital association and paid out under instructions of the association's executive committee.

The Act carries an appropriation of $15,000 to be used "for administration, engineering, architectural and other services and functions necessary for carrying out the provisions of this Act." The Act also provides that, "for purposes of construction, funds may be allotted by the State Building Commission."

To qualify under Act 211 for state and/or federal funds any local political subdivision or group of such subdivisions must proceed as follows: 1. The chairman of the county appropriating body and/or the mayor of each participating municipality is required to call a public meeting for the purpose of getting expressions from the citizens; 2. If sentiment is favorable, the governing body or bodies pass a resolution or ordinance authorizing the establishment of a hospital association, and appoint one member from each precinct or ward as a director of the hospital association; 3. Directors adopt a constitution and by-laws, elect officers, and secure certificate of incorporation from the Secretary of State; 4. Directors meet annually and select from among their number an executive committee of not less than five nor more than nine to transact all business of the association; 5. The executive committee meets monthly, and appoints a medical advisory committee of three to five members from the medical staff of the hospital; 6. The hospital association selects the architect, furnishes the hospital site, secures local funds, and gets approval of the State Board of Health for all of these; and 7. The hospital association applies to the State Board of Health for state and federal or other outside financial aid.

Act No. 287 dealing with tuberculosis sanatoria contains the following provisions: 1. The State is divided into seven districts varying in size from two to fourteen counties. 2. Any city, county, local political subdivision or group of political subdivisions within any district, subject to the approval of the State Committee of Public Health, may construct a tuberculosis sanatorium. 3. Local subdivisions or groups of subdivisions are known as regional sponsors and must furnish a building site subject to approval of the State Committee of Public Health. 4. The hospital building must have not less than ninety beds and provide for segregation of the races, and permit of expansion as approved by the State Committee of Public Health. 5. The State may contribute $118,000 per institution for construction and $17,000 for equipment, and the State's participation shall not exceed three times the participation of local sponsors. Local sponsors may accept federal aid without affecting the proportion of state and local participation. 6. Regional sponsors must furnish proof of financial ability for construction and maintenance and contract with the State Committee of Public Health for maintenance of the sanatorium. 7. Operation of the sanatorium is to be under a local board of trustees, with

no county to have less than two trustees, who must be residents and taxpayers. 8. The State Committee of Public Health may pay, from funds provided in the Act, the salary of a medical director, one technician and two nurses. 9. Expense of construction and equipment is not to exceed $945,000 for the seven districts from Alabama Building Commission funds allotted with the approval of the Governor. (The Legislature designated $500,000 to be spent on tuberculosis sanatoria as urgent projects.); and 10. The Act provides for operation an amount not to exceed $80,000 per fiscal year to be set up in the State budget when the Director of Finance, by written order, is told to do so by the Governor.

FEDERAL HOSPITAL LEGISLATION

Senate Bill 191 outlining a broad program of grants-in-aid to the states to assist in the construction of hospitals and public health centers was introduced in the United States Senate on January 10, 1945 jointly by Senators Lister Hill of Alabama and Harold H. Burton of Ohio. The bill was referred to the Committee on Education and Labor which gave favorable report after six days of hearings, and amendments recommended to strengthen it had been made. It passed the Senate December 12, 1945 and in the House was referred to the Health Committee of the Interstate and Foreign Relations Committee. Hearings have been conducted by this Committee and Senator Hill has been advised by the Committee that it is sure it will be reported favorably with few minor changes. After the bill reaches the House floor it is anticipated there will be a conference between Senate and House committee members, passage and finally to the President for his signature.*

The bill provides broad opportunity for each state to develop its own program for hospital and health center construction. There is a strong centering of authority in each state for conducting the survey, making a master hospital plan, and giving general supervision over hospitals built under the plan. It is clear, however, that the State or Federal Government will not exercise control over the hospitals and health centers. This is to be done by local hospital associations and boards of health. They will be owned and operated by local governing bodies, which alone will be responsible for their efficient, economical management and for their being able to serve the hospital and health center needs of those communities to the fullest possible extent.

The present Bill authorizes an appropriation which will make available $2,908,000 a year for five years to Alabama to carry out the purpose for which it is drawn. It is to be remembered that this is not an appropriation and funds will not be available until approved by the Bureau of the Budget and appropriated by the Congress for the purpose outlined.

Some have criticised the Bill as being inadequate because it does not provide federal funds for maintenance of a hospital when local funds are lacking and its failure to provide grants-in-aid for indigents. Nevertheless, the Bill presents an opportunity for all who are interested in health services to support a program on which there is agreement. The provision for adequate hospital and health facilities will require a long time. It is quite certain that improved hospital facilities alone will attract more qualified physicians to an area. It behooves those who are interested to bestir themselves in securing better distribution of improved hospital care. The controversial aspects of changes recommended in the present system of distributing hospital and medical care can be debated while this work is going forward.

*Since this was written, the Bill has been passed by Congress and signed by the President.

The Trend of Medicine—Today more is demanded of the physician than an interest in disease alone, for the practice of medicine transcends both diagnosis and therapeutics, which by themselves do not answer the modern challenge. At present it is demanded that the physician expend more effort toward the prevention of disease, thereby placing emphasis on understanding those factors which maintain man in equilibrium with his environment, rather than on those which precipitate illness. The physician is compelled to recognize the importance of the interaction of those situations which impinge upon and affect the equilibrium between man and his surroundings. Physicians of necessity must become philosophical biologists in order to have the maximum comprehension of the trend of medicine.

Unfortunately the curricula of modern medical schools have been over-burdened with the techniques of specialization and the minutiae of the sciences ancillary to medicine, and for that reason the more important subject of ecology has been excluded.—*Lucia, California Medicine, September '46.*

THE ROLE OF THE MEDICAL COLLEGE OF ALABAMA IN ALABAMA MEDICINE

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The purpose of this paper is to indicate the probable role of the Medical School in the program of Alabama medicine in the future and to review briefly the activities of the school since its founding less than one year ago.

At the last meeting of the State Medical Association in Montgomery two years ago, the site of the School had just been chosen. Since that time its development and progress have been fairly rapid. The Medical School is now functioning, with three classes under instruction, and the senior class will finish this fall. During this time, the school of basic sciences has been moved from its former location on the University campus and the old Medical School building there has been reconverted into class rooms for various basic sciences. The entire preclinical faculty has moved to Birmingham, with the exception of Dean Stuart Graves, who now maintains an office on the campus in his capacity of Director of Admissions, so that the freshman classes for the Medical College are selected on the University campus. All of the physical properties have been moved from Tuscaloosa to Birmingham, and have been installed in the Jefferson and Hillman Hospitals.

The Medical School is now a rather widely scattered plant in that it occupies the sixth, fourteenth and seventeenth floors of the Jefferson Hospital, as well as a considerable portion of the Hillman Hospital.

Both white and colored patients formerly cared for in the Hillman Hospital have been transferred to the Jefferson so that the teaching hospital now houses both white and colored and both pay and indigent groups in approximately the following ratio:

1945

White pay patients—52%
White indigent patients—15%
Colored pay patients—8%
Colored indigent patients—25%

Read before the Association in annual session, Birmingham, April 17, 1946.

Only indigent patients are used for teaching purposes, except in certain clinics, such as hematology, under the direction of Drs. Kracke and Riser, where all patients are used for teaching, regardless of their economic status.

The present quarters of the Medical School, although temporary, are quite satisfactory for the number of students now enrolled. The fact that space was available for housing the school has relieved to some extent the necessity for building the new Medical School at an early date.

At this time I am unable to predict just when the new million-dollar Medical School will be constructed. This is dependent upon a large number of factors, including the availability of materials, the accessibility of labor, and the removal of restrictions on building materials, much of which at this time are being funneled by federal order into the building of homes. In the meantime we are executing plans for the new building, and it is fortunate in many respects that we are granted additional time in order to do this most important planning of the new structure. I would estimate that it will probably be about two years before the new Medical School is finished.

The School now has under instruction three classes of medical students, these being at the present time the freshman, junior and senior classes. We are without a sophomore class, this irregularity being caused by the problems of conversion from an accelerated to a decelerated program and we are continuing acceleration of the present junior and senior classes only. It is the policy of the School to decelerate its program of instruction so that future classes will be admitted each fall and graduated each spring as before the war, as is now being done in practically every medical school in the United States.

Our student body numbers 106, of which 21 are in the senior class, 38 in the junior class and 57 in the freshman class. All of

our students are out of uniform, since the Army and Navy trainees have recently been separated from the service. Therefore, the great majority of our student body are ex-GI's and the total number of students includes 14 women.

Since the war ended, every student that we have accepted for the class beginning this October is a resident of Alabama and a veteran of the military service, with no exceptions to that rule. Obviously, the selection of students did not follow that principle prior to the ending of the war, since at that time medical schools were hard-put to find a student body of any kind.

The chief development in the establishment of the School has been the institution of a program of clinical instruction. This has proceeded in a satisfactory manner. The clinical material in the hospital is entirely adequate, numbering about 250-260 patients that are utilized for clinical instruction, supplemented by a large out-patient division, with the instruction being offered by a clinical faculty that is rendering splendid service. It has been a source of gratification to note the enthusiasm shown by our clinical faculty in the teaching of our students. Indeed, this fact alone has more than justified the original decision of the Medical School Building Commission to locate the school in Birmingham.

The total number of our faculty is approximately 120, of which the majority are Birmingham physicians serving on a voluntary basis. The ratio of faculty to students is about one to one which approximates that in the better medical schools of this country.

In setting up the Medical School, the University has pursued a vigorous policy of acquisition of properites so that worthwhile associated medical institutions will eventually be built in the immediate area. This farsighted policy was mainly because of the vision of the President of the University, Dr. Paty, and the Board of Trustees. Because of a lack of working capital, it was necessary to borrow some $200,000 from the Medical School Building Commission. This was used to acquire southside properties, and at this time the properties have all been sold or allocated to affiliated medical institutions and the borrowed capital has now been returned to the Medical School Building Commission so that our building fund is intact. This policy has resulted in the provision of land whereby there may be constructed such institutions as The Crippled Children's Hospital, the new seven-million-dollar Veterans Hospital, the new city, state and county public health building, the University Center of Adult Education, a new nurses' home, an anticipated tuberculosis hospital, a children's hospital, and facilities for a school of nursing education.

It should be pointed out that the affiliation of all of these various medical activities, in addition to providing services in their respective fields of medical care, means that the educational program of our Medical School will be greatly strengthened by their presence. Thus a fine Crippled Children's Hospital means that our undergraduate and postgraduate students should have excellent instruction in the field of orthopedics. It is gratifying to know that the new policy of the Veterans Administration contemplates that the Veterans Hospital shall be in truth a teaching hospital. Therefore, the addition of the 700 beds in that institution means that our Medical School will have access to greatly increased volume of clinical material. It is planned that the Veterans Hospital will be staffed by members of the Medical School faculty, facilitating therefore this program of instruction. The presence of a large public health activity practically guarantees first-class instruction to our young doctors in that important field.

The University has invested practically $350,000 in suitable and adequate student dormitories. This is a very important and unique development because such provisions are seldom furnished by medical schools in large cities. The wisdom of this course has been amply justified by subsequent events, since our students are all provided with proper housing under supervised conditions, and many of our young married faculty members, resident staff, and other personnel have had housing available in the dormitory area. Our dormitories are completely filled with 260 medical people, with a long waiting list and we are planning at present to supplement this with the acquisition of some 40 apartment units for veterans, these to be obtained from federal sources.

The primary purpose of the Medical College of Alabama is to train physicians for the practice of medicine in this State. It is

for that reason, therefore, that our enrollment is now being restricted to residents of Alabama, with emphasis placed on the admission of veterans. It is unfortunate that the enrollment of all medical schools is by necessity restricted to very limited numbers because today there is a great demand for medical education on the part of considerable numbers of returning veterans. With our present facilities, it is impossible to increase the size of classes over the number admitted at present, this being 52 in the freshman class.

The majority of our student body are veterans of the second World War. In addition we have in training nearly 60 doctors in our intern and resident staff, all of whom are veterans and nearly all are residents of Alabama. We are able to accept only a small number of discharged medical officers who are applying for specialty training at this time because of limitation of instructional facilities and clinical material.

Our first class of 21 students will finish their formal four years of instruction this fall, yet they will not receive their degree of Doctor of Medicine at that time but will spend an additional six months as externs in Alabama hospitals. The allocation of this group to the various hospitals is now practically completed. They will serve in such institutions as those at Huntsville, Gadsden, Florence, Jasper, Sylacauga and Dothan, and some of them will spend this period in public health work. The student selects the hospital of his choice for the six month's externship, and applies directly to the hospital just as when seeking an internship. The school refrains from influencing him in his selection, but does approve or disapprove his selection. It is our hope that our graduates will become attracted by contacts in these various areas so that they will be encouraged to practice medicine eventually in the state of Alabama.*

Furthermore, it is the plan of the school to develop a system, if it meets with the approval of the accrediting agencies, whereby our regular intern staff in the teaching hospital shall spend approximately half of their time in small Alabama hospitals, with one-half of our staff being in the teaching hospital and half being in the smaller institutions. The development of this plan must, of necessity, await removal of the restrictions imposed upon us by the requirements of the military service. Such a plan means that many smaller institutions that ordinarily are not able to secure interns will be acceptable to the Medical School.

The Medical School does not consider its responsibilities ended when the student has received his M. D. degree. A very important part of our educational process is graduate training, offered to our corps of interns and residents, who at this time comprise a group of sixty men. The number is somewhat larger than it would be ordinarily for the reason that we have tried to make room for as many discharged medical officers as we possibly can without impairing the value of our services. We expect the majority of this group to practice in Alabama.

The Medical College has many responsibilities other than the undergraduate training of doctors. We are concerned with postgraduate training, within the limits of the capacity of the school to provide such instruction. Thus, within the past three months, there have been held each month four-day sessions in the fields of obstetrics and gynecology, medicine and its various specialties, and surgery and its various specialties. The attendance at these postgraduate seminars has been excellent considering that it is the first year that such instruction has been offered. The seminars consisted of lectures, clinics, demonstrations, and ward rounds, given by our faculty, supplemented by visiting specialists from other institutions. They were attended by over 150 Alabama doctors, representing more than 50 cities and towns throughout the State.

It is also the function of a medical school to train young women in the field of nursing. In some institutions, this is done as a separate activity, with the establishment of a separate school. Our institution is not yet sufficiently developed to where that can be done, but in the meantime it becomes a direct responsibility of the Medical School and its teaching hospital. There is considerable difficulty for all hospitals these days to secure adequate numbers of students to enter the field of nursing, this being caused by several factors, including some postwar unrest in the nursing group, an apparent dis-

*These students received their degrees on October 25, 1946.

satisfaction with civilian duties and pay as compared to the military, the curtailment of training nurses during the war, and a slow return of military nurses to civilian duties. The shortage will probably exist until sufficient numbers of young women are trained in the various nursing schools, and again provide an even flow of graduates for duty in the various hospitals.

The Medical College has also instituted a program of training for laboratory technicians. At this time we have 16 young women, all of whom are college graduates, undergoing a year's program of instruction in the clinical laboratory fields. We believe that training of competent, auxiliary medical workers is almost as important as the training of physicians, since it is well known that the physician cannot function to the extent of his capacity unless he is provided with skilled and adequate personnel in the auxiliary fields to help him in his work.

We have only recently instituted the development of a Department of Anesthesiology and there will be established in a reasonably short time a School of Anesthesiology in which there will be offered not only training for undergraduates and house staff and specialty training for young doctors but also the training of nurse anesthetists as well. We are committed to the principle that we should use physician anesthetists, if that were possible, but in the state of Alabama that is not possible in the smaller cities and rural areas. Therefore, we consider it our duty to train young women in the field of anesthesia so that better services in this specialty may be provided the people of our State, particularly in the smaller communities.

The School has been fortunate in the acquisition of its teaching hospital. Although at the present time we are operating the Hospital as agents for Jefferson County for the reason that Jefferson County owns the institution, it is anticipated that the state of Alabama will pay the outstanding indebtedness on the institution which is one million two hundred thousand dollars owed to the Reconstruction Finance Corporation.* Only when this is done can the Hospital become the property of, and under the absolute control of, the Medical School and the University. In no other way can a satisfactory Medical School be developed.

The action of Jefferson County in offering all of its hospital properties to the University, contingent upon the payment of this indebtedness, provides an opportunity for the State to acquire, both for purposes of medical education and medical care, some five million dollars worth of hospital properties for the sum of one million two hundred thousand dollars. This, then, will provide the State not only the most satisfactory type of educational plant in medicine but also a large central hospital plant which will be ready to fit into any program of hospital construction or medical care that the State may develop in the future.

In conclusion, I would offer a few comments as to the possible role of the Medical School and its teaching hospital in any system that might be developed by the state of Alabama for offering better hospital facilities to its people.

I have pointed out that the major role of the Medical School is the assumption of responsibility for the training of physicians, nurses, technicians, anesthetists, and other medical people. The University of Alabama is an educational institution, and as such its primary interests are directed toward the education of people and will always, I am sure, be directed toward that objective. At the same time, the operation of a medical school and the training of skilled personnel offer an opportunity for an agency of the State to enlarge greatly its usefulness to the people. It can best do so by utilizing its educational plant to help the doctors of Alabama give better medical care.

There seems little doubt now that within the next few years there will be established in this State, as well as others, a system of hospital construction patterned after some plan such as that proposed in the Hill-Burton Act. Whether increased hospital facilities come through this or some other channel is a matter of secondary importance, but one of the most important functions that the Medical College and its teaching hospital can exercise is for the institution to serve as a central nucleus for such a state-wide system. This makes it doubly important that the state of Alabama secure now, when it has the opportunity, the teaching hospital of the Medical College. Thus, in the years to come,

*Since this was written, the Hospital has been purchased by the State.

the state will be in a position to offer the services of a state-owned hospital for participation in any plan of hospital development. This is in accordance with the basic policy of the Medical College of Alabama, which is not only to train skilled people to offer better medical care to our citizens but also to offer its facilities toward the same objective.

We are operating an institution that is supported by taxation, and it is our primary responsibility to return that money to the people in the form of skilled personnel and skilled services that will make Alabama a better place in which to live. The University of Alabama happens to be the instrument or agency to which has been assigned the responsibility for doing this job. It merely happens to be the educational unit of the State that has been charged with a new task, not only of educating medical people but a task of providing better medical care to a large group of citizens. Therefore, I have been distressed to see evidence of a pernicious viewpoint that seems to permeate the educational structure of Alabama, namely, a viewpoint of competition between the various educational institutions and interests throughout the State. I have been astonished to see evidence that when certain State funds are allocated to one institution another one feels that a similiar sum must be allocated to that one. It seems to me that the educational forces of this State should recognize the fundamental fact that the operation of a medical school and a large hospital involves a great deal more than education itself. It involves the offering of medical care to groups of indigent people, in what may well be the beginning of a system of medical care for the indigent people of the entire state of Alabama. To have such a worthwhile activity impeded from the very beginning by this system of competition for educational funds may prove to be tragic for the ultimate health and welfare of our people.

I would be derelict in my duty if I did not emphasize to the doctors of Alabama that this Medical School should be responsible not only for the education of skilled medical personnel but also should make its services available in the broad program of medical care. Therefore, it serves a dual function, one of education and one of actual care of the sick. I urge you to emphasize this viewpoint among the lawmakers in your respective communities, and to point out to them that the Medical College of Alabama and its associated hospital activities should not be penalized by reason of this deplorable competition which seems to exist between the educational forces of Alabama with respect to procurement of monetary allocations from the State.

The role of the Medical College in the life of this State, therefore, is going to be largely dependent upon the responsibilities with which it is charged and that it is permitted to assume. The assumption of such responsibilities in the broad problems of medical care cannot be carried out without adequate financial support, and such support cannot be forthcoming if it is provided upon the basis of monies allocated to the various educational enterprises throughout the State. The time has come for Alabama to do something constructive for the health of its people besides the training of doctors. The first and logical step is the procurement of a large teaching hospital for the care of its indigent. But if the procurement of a state hospital for medical care depends upon whether some other institution gets a dormitory, then we have a chaotic confusion of relative values which should be corrected.

I am grateful for the splendid work our Alabama doctors have done on behalf of the Medical School, for your expressions of encouragement and support, and for the confidence so many of you have shown on many occasions. With your continued support we will have a great medical institution that will reflect credit on our State, and the scope of its usefulness to the people will be restricted only by the amount of support it receives with which to do its job.

Community Cooperation—The school surely is in a strategic position to help determine the community health program. It has directly under its supervision about one-fourth to one-fifth of the community population. Potentially at least it has access to the families of these children. Altogether the school can reach directly perhaps half the community. Unfortunately there has been insufficient planning of the school health program to capitalize this opportunity even with school children. School medical examinations, as usually performed, have often not disclosed significant evidence of disease or disorder . . . the findings have not been used with imagination.—*Wheatley, J. Connecticut M. Soc., Oct.* '46.

THE APPLICATION OF THE RH FACTOR IN GENERAL PRACTICE

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Seldom has practical application of a medical discovery been utilized so rapidly as has the discovery of the Rh factor by Landsteiner and Weiner.[1] As a result, the lives of many mothers and babies have been saved. In the past five years there has been considerable literature, both lay and medical, on the Rh factor, especially as to how it affects the treatment of mothers and the newborn.

In this paper we shall briefly discuss the clinical application of the present day knowledge of the Rh factor and its practical application to the etiology and treatment of erythroblastosis fetalis, transfusion reactions, and stillbirths.

In 1940 Landsteiner and Weiner reported the formation of an antibody in rabbit's blood after the injection of blood from the *Macacus rhesus* monkey. It was found that this rabbit's blood contained agglutinins which reacted with a high percentage of human blood. As a result of this work, a hitherto unrecognized factor in human blood was found and named the Rh factor. Since then, tests on thousands of blood samples have revealed that approximately 85% of all human bloods contain this Rh factor (i. e., are Rh+ or Rh positive) and 15% of them do not contain this factor (Rh— or Rh negative). However, in the Negro race, 92% are Rh positive and 8% are Rh negative. It was also observed that, in cases of erythroblastosis fetalis, the mother was usually Rh negative and the father Rh positive, and that intra-group transfusion reactions occurred very frequently in women who had had stillbirths or had been delivered of erythroblastotic infants.[2]

ERYTHROBLASTOSIS FETALIS

This condition occurs in infants because of the following sequence of events: The father is Rh positive and the mother is Rh negative. Since the Rh factor is inherited as a Mendelian dominant characteristic, the child is usually Rh positive. During in utero life, some of the blood of the fetus enters the maternal circulation through some defect in the placental circulation and the mother reacts to the new antigen (agglutinogen) by producing new antibodies (agglutinins). The agglutinins, in turn, pass through the placenta into the fetal circulation, agglutination and hemolysis begin, and erythroblastosis fetalis ensues.

The clinical picture of erythroblastosis has recently been ably described in this Journal[3] and will not be repeated here. The treatment of erythroblastosis fetalis consists, in the main, of transfusions to replace the destroyed erythrocytes, preferably using compatible Rh negative blood from a donor other than the mother. In case of emergency, Rh positive blood may be used; but, since some of the mother's agglutinins may still be present in the baby's blood, further agglutination will occur. The maternal anti-Rh agglutinins are found in various body fluids other than blood and it is believed that they are present in mother's milk. Therefore, an erythroblastotic infant should not be breast fed.

Erythroblastosis fetalis rarely occurs with the first pregnancy because, at that time, the maternal blood has not been sensitized to the Rh factor. Where Rh incompatibility is present, the likelihood of erythroblastosis fetalis increases with each subsequent pregnancy. Once an Rh negative mother has given birth to a baby with erythroblastosis the antibodies remain in her blood. The potency of the antibodies gradually diminishes as time goes by, but it is probable that, once a mother has had sufficient antibodies to cause the disease, subsequent babies will develop the same condition. There is no known method of removing the antibodies from the maternal blood. The disease may

1. Landsteiner, K., and Wiener, A. S.: Proc. Soc. Exp. Biol. & Med. 43:226, 1940.
2. Levine, P.; Katzin, E. M., and Burnham L.: J. A. M. A. 116:825, 1941.
3. Adams, M. V.: J. M. A. Alabama 15:93, 1945.

occur with the first pregnancy, if an Rh negative mother has previously been transfused with Rh positive blood. In this case, transfusion would evoke the same immunologic response as a pregnancy would.

Since approximately 15% of all women are Rh negative, it would seem that the incidence of erythroblastosis would be high. Actually, the disease occurs once in approximately every 300 pregnancies, and Wiener[4] states that only one in approximately 25 Rh negative persons becomes sensitized to the Rh antigen. Trautt[5] explains this seeming discrepancy by pointing out that the placental barrier is more intact in some pregnancies than in others and that the mother's ability to react to the antigen may be variable.

TRANSFUSION REACTIONS

No experience in medicine is more tragic or more alarming than a severe reaction following the transfusion of apparently compatible blood. It has been found that the Rh factor plays a major part in some of these catastrophes. Every recipient of a transfusion should be Rh typed and especially every woman. In an Rh negative nulligravida, transfusion of Rh positive blood may produce agglutinins which may manifest themselves years later by producing erythroblastosis fetalis in a baby or by producing severe reactions with a subsequent transfusion. A parous Rh negative woman may have a serious reaction with a first transfusion, having been sensitized by bearing an Rh positive child. These disasters may be avoided by using only Rh negative donor's blood to transfuse an Rh negative patient.

STILLBIRTHS

From the above discussion it is apparent that agglutination and hemolysis of fetal blood may proceed extensively during pregnancy, and its effect on the baby is always serious. As pregnancy progresses, the production of destructive elements in the maternal blood may become so severe that in utero death of the fetus occurs. This is the usual mechanism of death when the Rh factor is responsible for stillbirths. In other words, the deaths are due to the same hemolysis and agglutination as occurs in erythroblastosis following a live birth. From this it appears that when anti-Rh agglutinins are present, the infant would have a better chance of survival if labor were induced prematurely. Premature induction of labor is advocated by some[6] and condemned by others. The value of cesarean section at eight months is still unsettled and further clinical experience will give the answer. Methods have now been devised to measure the titer of agglutinins in maternal blood and it is believed that this test may be of value in deciding whether to allow pregnancy to proceed to term. If, as pregnancy advances, the titer of maternal agglutinins rises rapidly, cesarean section at eight months would give a better prognosis than would delivery of a full term erythroblastotic infant. This quantitative test is technically difficult and is not available in most clinics at present. The role of the Rh factor in producing abortion in the early months of pregnancy is doubtful since the agglutinins are produced mostly in the latter part of pregnancy. However, Javert[7] studied 50 women who were mothers of erythroblastotic infants and found that there was an incidence of 32% abortions in this group following the birth of the full-term erythroblastotic infants.

From the above discussion, it is apparent that the Rh factor is of great importance and that, ideally, Rh determinations should be done on all women and especially all pregnant women. This is done at some clinics. In our own practice we advise all our obstetric patients of the importance of the Rh factor and advise that they have the test done. We insist on Rh typing whenever there is a history of previous stillbirth, transfusion reaction, erythroblastosis fetalis, repeated abortion, or sterility, and we demand that all women be Rh typed before transfusion. If the patient's blood is Rh positive, no further investigation is needed. In all pregnant women in whom an Rh negative result is obtained we have the Rh determination done on the husband also. If he, too, is Rh negative, isoimmunization of the mother and passage of the agglutinins to the fetus naturally will not occur. If the husband of a

4. Wiener, A. S.: Trans. and Studies, Coll. of Phys. of Phila. Dec. 1945.

5. Trautt, H. F., et al.: Am. J. Obst. & Gynec. 50:722, 1945.

6. Belson, M. O.: Ibid. 52:106, 1946.

7. Javert, C. T.: Am. J. Obst. & Gynec. 43:921, 1942.

pregnant Rh negative woman is found to be Rh positive, we bear in mind the dangers present, should a transfusion become necessary. Also, we check the fetal heart beat more often as pregnancy progresses. The pediatrician, too, is forewarned of the possibility of erythroblastosis in the newborn. In this manner we avoid complications that might otherwise be fatal.

Rh typing has now become a routine procedure in most laboratories and is available to all patients throughout the State.

SUMMARY

1. The Rh factor is a new element, unrelated to the usual blood types, and is found in approximately 85% of the general white population and in 92% of the Negro race.

2. A mother whose blood is lacking this element can become sensitized to it by (a) bearing an Rh positive child or (b) receiving a transfusion of Rh positive blood.

3. A mother so sensitized may pass the antibodies through the placenta to the fetus, causing agglutination and hemolysis of its blood (erythroblastosis fetalis or stillbirth).

4. A woman so sensitized may have a fatal reaction if given a transfusion of Rh positive blood.

5. Once a woman with Rh negative blood is sensitized to Rh positive blood, the antibodies probably remain indefinitely.

6. All pregnant women, especially those with history of obstetric abnormalities, should be Rh typed and their husbands should also if the woman's blood is Rh negative.

Sacroiliac Sprain—The physical findings are usually characteristic. The patient may be carried but more often walks into the office bent over forward, leaning and limping toward the affected side. Sitting, he is unable to reach his fingers to his shoes on the floor. The classical symptoms of lumbar flattening, scoliosis, muscle spasm, hamstring phenomena, and direct and indirect tenderness over the affected joint are not always present. With the patient stripped to the waist and standing with the back bare, flattening of the lumbar curve is usually observed, although in mild cases it may not be; scoliosis of the lumbar spine toward the injured side and of the dorsal spine away from the injured side is sometimes noted. Muscle spasm in the lumbar region is as a rule present in varying degree, depending upon the severity of the injury, but may be absent or observed only in extreme arcs of motion. On flexion of the spine, muscle spasm is more pronounced forward and laterally away from the injured side. —*Bidwell, J. Florida M. A., October* 1946.

Biopsies in Cancer Diagnosis—Well preserved tissue is necessary for accurate interpretation and as soon as the specimen is removed from the patient it should be dropped into a jar of 10 per cent formalin or some other suitable fixing agent. Tissue which is partially dried, poorly fixed or decomposed is distorted and unsatisfactory for diagnosis. Similar distortion results from the removal of small biopsies with an electric cautery. The tissue margins are shriveled and burned beyond recognition. It is better to remove the tissue with a knife and then apply the cautery to the wound margins if necessary. When small skin lesions are excised for diagnosis it is often wise to remove the whole lesion. Most surgeons appreciate the importance of excising an adequate margin of normal skin about a lesion suspected of being malignant but they frequently fail to dissect deeply enough. The pathologist often discovers that cancer extends entirely through to the deep surface of a specimen and he must presume that some tumor cells have been left behind in the depths of the wound. In dissecting out enlarged lymph nodes for diagnosis the surgeon often encounters a group of nodes. Metastatic carcinoma may involve only one or two nodes in the group. The largest node is the one most likely to contain tumor and even though it may be more difficult to remove than a smaller node it is more likely to yield a reliable diagnosis. Inguinal lymph nodes are notoriously prone to show chronic inflammatory changes and fibrosis even in normal persons. In patients manifesting generalized lymphadenopathy the inguinal nodes are the least desirable for pathologic diagnosis.

A number of technics have been developed to simplify the process of obtaining tissue for pathologic study. Among these are the punch, aspiration or needle biopsy of such structures as the prostate and superficial lymph nodes and even of the lung, spleen, and liver. From the pathologist's point of view such biopsies may be adequate to justify an unequivocal diagnosis but often only a tiny shred of distorted tissue is available for examination and no positive report is warranted. Aspiration biopsies often give valuable information but are much less dependable than open biopsies.

Examination of peritoneal or pleural fluid and smears of bronchial or vaginal secretions may reveal malignant cells. Here the pathologist must rely on the characteristics of individual cells or small groups of cells. A diagnosis of cancer based on such evidence is less reliable than a tissue biopsy and failure to find malignant cells has little weight in ruling out the presence of cancer.

Frozen section diagnosis represents a great advance in the practical usefulness of biopsy. While the patient is on the operating table tissue can be removed and a section made, stained and examined within five to 10 minutes. The appropriate treatment can then be instituted without delay. In experienced hands frozen section diagnosis carries a high degree of accuracy but is still somewhat less dependable than diagnosis by routine methods. The slides are of relatively poor quality, the pathologists's decision is hurried and the surgeon must expect a higher proportion of equivocal reports.—*Dunlap, New Orleans M. & S. J., Oct.* '46.

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PRACTICAL NURSING IN ALABAMA

Under the new law providing for the examining, licensing, and regulating of practical nurses in Alabama, progress is being made toward the standardization of nursing care on a secondary level. With the rapid development of modern medical care, which necessitates highly specialized professional nursing service, and the increased demand for care of the subacute, convalescent, chronic and aged patients, the importance of well prepared practical nurses to the provision of a complete over-all nursing service became apparent.

The responsibility for the administration of the law is delegated to the Nurses' Board of Examiners and Registration and an Advisory Council. The Council is composed of representatives of the State Board of Health, the State Medical Association, the State Hospital Association, the State Association of Licensed Practical Nurses, and a lay member.

Licensing by waiver is underway at this time, with supplementary refresher courses being offered throughout the State to those nurses who become licensed by this method. These courses are valuable in standardization of techniques and clarification of relationships, and the nurses are responding readily.

Two-day institutes on practical nursing were conducted in Birmingham, Montgomery and Mobile, with Miss Hilda Torrop, President of the National Association for Practical Nurse Education speaking at each of the sessions. Doctors, hospital administrators, professional nurses, educators, practical nurses, and members of civic organizations were invited to the institutes, and newspaper publicity was released at the same time. It is believed that the intelligent use of licensed practical nurses will depend largely upon the accurate information and comprehensive understanding of the members of these groups.

Standards and policies for the accreditation of schools for practical nurses are in the process of preparation. The need for such schools is pressing. There are inquiries from organizations wishing to establish schools and from prospective applicants. As this is a new project throughout the country, Alabama is pioneering in the movement. Thus, the cooperation of all groups concerned is necessary to its success. If a group of licensed practical nurses, able and willing to meet the nursing needs created by illness in homes, hospitals, and other institutions (other than those requiring the knowledge and skill on the registered nurse level) can be provided, the gap which is so tragically evident in our overall nursing service will have been narrowed. And it is believed that this can be accomplished with the time, effort, and cooperative thinking and planning of all groups.—*Mary O. Peyton, R. N., Assistant Executive Officer, Board of Nurses' Examiners and Registraton for the State of Alabama.*

COMPULSORY HEALTH INSURANCE AND MALINGERING

Reprinted from New York State J. Med., Oct. 1, 1946

In the light of this country's experience of the past few weeks, in which its prestige has been practically wiped out by its labor disputes, intelligent public opinion, if there is such a thing, seems agreed that its troubles are due to the unilateral provisions of the Wagner Labor Relations Act.

On top of this, we are being asked to hand over the health of the nation and the future of the medical profession to the tender mer-

cies of a product of the same brain—the Wagner-Murray-Dingell bill.

It is interesting to recall that the doctrine of security for the masses was first promulgated by that outstanding democrat, Otto von Bismarck. He thought it would keep the masses quiet between wars. It did, in Germany.

A widespread and utterly fallacious belief is now abroad. It is that the average man is an industrious ambitious soul who loves work for its own sake. That is not so. Ask anyone who has had much experience with the Workmen's Compensation Law. Surely a man should be paid for invalidism suffered as the result of injury encountered in the line of duty. We agree with the theory one hundred per cent.

But, once you begin paying a man for being sick, you have embarked upon a perilous sea. The speed with which a man can exchange his ambitions and high hopes, his vanity and the future of his family for security at a low rate of income is something that has to be seen to be believed. There was a day when the first question asked the doctor was "How soon can I get back to work?" Now the question—unexpressed, but firmly planted in the subconscious mind is "How long can I stay sick?"

The social reformer is not generally a person very well acquainted with the facts of life and the general nature of man. If he were, he would look about for more promising material on which to work. We submit that the public is entirely ignorant of the nature and the widespread practice of malingering. Under this Act, we know of no way in which a patient can be forced to admit that he is well. How much more difficult would this become under universal coverage? Malingering is a harsh word, but this is an occasion for harsh words.

There is scarcely a family that has not some relative or connection who enjoys ill health, as the saying goes. They wander from doctor to doctor until their money runs out, or a new quack comes to town.

If a doctor tries to tell them there is nothing the matter with them, they will take their names off his panel and spend the rest of their lives blackening his reputation. They go to a doctor who will give them the nice pink medicine they crave, for the rest of their lives—and get paid for doing it. Thus is dishonesty encouraged from both sides.

We have an airy way of thinking that nothing really bad can happen in this country. In England the claim rate for wage loss benefits increased 50 per cent in six years. In Germany it trebled between 1885 and 1940.

The Wagner-Murray-Dingell bill gives us something to think about, doesn't it? It has not only economic but moral implications.

In 1916 the State of New York instituted peripatetic clinics, given all over the State for victims of the epidemic of anterior poliomyelitis. Many and loud were the protests of parents who said they had always paid their doctor and didn't want a state doctor to treat them free. They felt very strongly that there was a principle involved.

There was, but the principle—of not wishing to get something for nothing—now seems very dead and very deeply buried.

DDT For Head Lice—To simplify the treatment and control the source of contact, a preparation of DDT powder (10 parts DDT and 90 parts inert powdered talc) was utilized. Head inspections were made by the school nurse on all children in a grade and the infected child was treated by the school nurse. Utilizing a small atomizer, the DDT powder was sprayed on the child's hair, a paper towel being placed over the eyes to prevent any irritation. A towel or kerchief was placed over the scalp to prevent the loss of the powder and to hold the lice that came to the surface and the child was sent home with instructions to keep the head covered until bedtime. In the morning the hair was combed with a fine comb to remove the dead lice and as many eggs as possible.

The child is permitted to return to school the next day following an inspection by the nurse. Even if the nits are not all combed out, the child remains in school and receives daily inspections until the 7th day, when another application of DDT powder is made, following a shampoo given the previous evening. At the end of the second week another inspection follows. If any nits are detected, a third application of DDT powder is made. Frequently this third application is unnecessary.

In the meantime the nurse has visited the home to inspect all other members of the family. If any member, child or adult, is found to harbor pediculi the same treatment is advocated for the individual not attending school.—*Kaiser, Am. J. Pub. Health, Oct.* '46.

MEDICAL COLLEGE OF ALABAMA NEWS

The newly organized Alabama Association of Pathologists held it first scientific session in Birmingham, September 21 at the Medical College of Alabama.

The preliminary features of this Association were organized at the last annual meeting of the Medical Association of the State of Alabama held in Birmingham during April. The purpose of the Alabama Association of Pathologists is to increase service to the people of Alabama by correlating the pathological interests of those who engage in the work of pathology. During the state medical meeting this group elected the following officers: Dr. Walter Jones, Birmingham, President; Dr. Milton Wise, Mobile, Vice-President; and Dr. Joe Cunningham, Birmingham, Secretary-Treasurer.

The Association plans to hold two meetings yearly. One will be in connection with the annual session of the State Medical Association; the second will be a scientific session similiar to the one held in September.

The session opened at nine o'clock, September 21 in the auditorium of the Medical College of Alabama with an address, Hodgkin's Disease and Its Suggested Relationship to Brucellosis, by Dr. Wiley D. Forbus, Professor of Pathology, Duke University. Following were scientific papers presented by Dr. Milton Wise, Mobile; Dr. Roger D. Baker, Professor of Pathology, Medical College of Alabama; Dr. Ralph McBurney, Professor of Bacteriology, Medical College of Alabama; and Dr. J. D. Bush and Dr. Albert Casey, both of the Baptist Hospitals, Birmingham.

The group was entertained for lunch by the Medical College of Alabama, after which there were case presentations in the form of a slide seminar, Dr. Forbus acted as referee. The meeting was closed at a dinner at the Mountain Brook Country Club.

* * *

Dr. Charles H. Winkler came to the Medical College of Alabama October 1 as Assistant Professor of Bacteriology and Clinical Pathology.

Dr. Winkler, a native of Texas, received his B. S. and M. S. degrees at Texas A. and M. and his Ph.D. in Parasitology and Bacteriology at the University of Wisconsin. He taught parasitology and bacteriology at University of Arkansas Medical College before coming to the Medical College of Alabama.

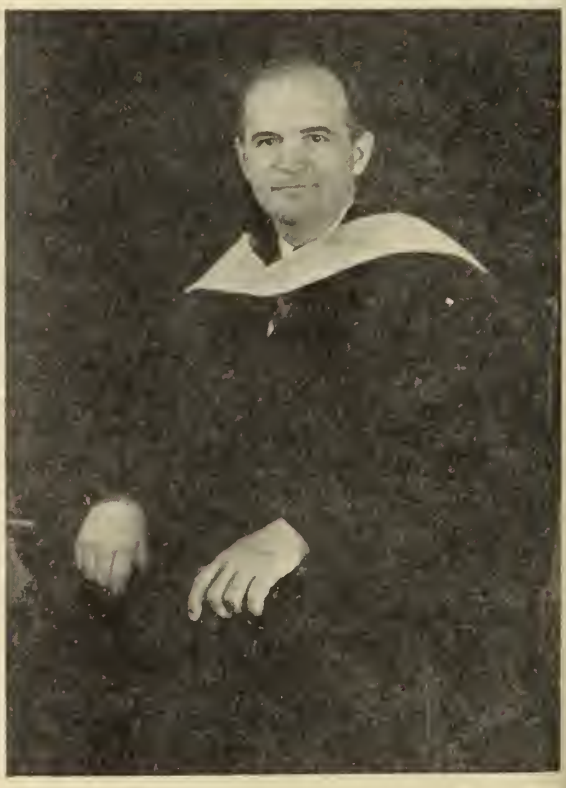
* * *

Dr. Harwell Davis, Jr. has been granted a fellowship in pathology from the Life Insurance Medical Research Fund to do research in atherosclerosis.

Under the direction of Dr. Roger D. Baker, Professor and Chief of the Department of Pathology, Dr. Davis will carry on his work at the Medical College of Alabama.

Dr. Davis came to the Medical College as a fellow in pathology after serving in the Medical Corps of the U. S. Navy for 31 months, 18 months service being in the Pacific. Prior to this he graduated from the University of Alabama, received his Master's in Pathology and M. D. degrees from Northwestern University and interned at Greenville General Hospital, Greenville, South Carolina.

* * *



Dr. Waltman Walters

The second annual series of Postgraduate Seminars will be held at the Medical College of Alabama, Birmingham, December 2nd through the 5th. Interested members of the profession are invited to attend.

There will be four guest speakers. Dr. A. A. Weech, Professor of Pediatrics, University of Cincinnati, will speak on Emotional Needs of the Child in the Development of Behavior, December 2nd.

Dr. R. A. Bartholomew, Professor of Obstetrics, Emory University, whose subject is Conservative Versus Radical Treatment of Premature Separation of the Placenta, will speak on December 5th.

Surgical Treatment of Peptic Ulcer—Special Reference to Vagotomy, is the subject of Dr. Waltman Walters, Head of a Surgical Section, Mayo Clinic. He will speak December 4th. Dr. Walters is a member of the Board of Governors, and Professor of Surgery, Mayo Foundation, University of Minnesota. He is an authority on surgery of the stomach, gallbladder and pancreas. He is author of Diseases of the Gallbladder and Bile Ducts (with A. M. Snell, 1940) and Cancer and Other Malignant Lesions of the Stomach (with H. K. Gray and J. T. Priestly, 1942), and other articles.

The guest speaker for December 3rd will be Dr. Edgar Jones of Vanderbilt University whose subject will be Nutritional Factors in Anemia.

The morning and afternoon sessions will be occupied with lectures, case presentations, a clinical pathological conference, and round table discussions.

Approximately two hundred physicians representing fifty Alabama towns attended the Seminar series last year.

STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

B. F. Austin, M. D.
State Health Officer

INFLUENZA

In a recent communication to the State Health Officer, Dr. Edgar H. Greene, of Atlanta, who served during the war as Chairman of the Fourth Corps Area for Procurement and Assignment Service for Physicians, expressed his appreciation of the services of physicians in Alabama and elsewhere in obtaining a balance between adequate medical care for the civilian population and an adequate number of physicians for the armed forces. As a result of that balance, he went on, "no nation had a better medical service for its fighting men" and "our people came victoriously through the trying ordeal without serious damage and no major epidemic."

Dr. Greene was not the first man of medicine to compare health conditions among the country's civilian population during World War II with those prevailing during World War I. Any number of other health workers, and others as well, have commented upon that difference. It should stand as a shining symbol of the progress made by medical science during the uneasy peace which separated two world-shaking conflicts.

The difference between civilian health during World War I and during World War II is particularly striking when we think of influenza. For, while our people suffered outbreaks of this disease in the second of the World Wars as well as the first, there is no comparison between their severity. The writer has an idea that Dr. Greene was thinking of this disease especially when he expressed gratification that the civilian population had come through the latest struggle "without serious damage and no major epidemic."

This, however, is no time for self-congratulation. For, while the war is safely over and the international horizon is only relatively ruffled, we must not forget that war conditions are still with us to a great extent. We still have extreme overcrowding. We still have many physicians in uniform and many communities tragically underpopulated, medically speaking. The population upsets which marked the war period have not all been resolved by any means. Food shortages are still serious and, in the case of some items, are even more acute than

during the fighting phase of the war. The war psychology, which tends to make people think less about their health than they do when conditions are normal, is still very much with us. Many other influenza-inducing conditions which the war made more serious still are placing a potentially heavy hand in the scale of national health. So let us not dismiss this danger yet.

The influenza danger is likely to become even more serious within the next few weeks and months than it is now. For, remember, the cold-weather season is, ipso facto, the influenza season. During late autumn, winter and early spring the hours of sunshine, which make for good health, are fewer than they are in midsummer. During these seasons, too, people wear heavier clothing and keep the body covered more nearly than they do in summer, when sunbathing is the order of the day and even those who are not sun-bathing expose much of their bodies to health-building sunlight. So all of us need to be especially watchful for influenza from now on until next spring.

One of the most promising fruits of medical science's efforts to free the human race of this dangerous disease has been the development of vaccines which aim to provide the same degree of immunity to it that typhoid and smallpox vaccines provide against those diseases. Although much work still remains to be done in this vital field, the results obtained thus far have been extremely encouraging.

Speaking early this year, Dr. Wendell M. Stanley, biochemist on the staff of the Rockefeller Institute for Medical Research, declared that vaccines developed during the war and later made available for civilian use have "placed in our hands the means for preventing influenza virus from once again assuming the role of one of the great destroyers of human life." This internationally known expert expressed the opinion that, even should some entirely new strain of influenza virus be found, it would be a matter of only a few days before a considerable measure of protection could be developed to cope with it.

More recently—that is to say, on May 17 of this year—Dr. Thomas Francis, Jr. and Dr. Jonas E. Salk, both of the faculty of the University of Michigan, reported at the annual meeting of the American College of Physicians that a remarkable degree of immunity had been enjoyed by men and women in the Army who had been vaccinated against the commonest types of influenza—A and B. Indeed these medical scientists declared that soldiers who had received this vaccine had shown a nine-to-one advantage over others, as far as their chances of escaping the disease were concerned. They expressed the opinion, based upon their own and others' research, that even single injections of newly developed influenza vaccines had provided "a significant effect" for "as long as a year at least."

"Through a combination of circumstances at two universities, it was possible to make careful comparisons between fully vaccinated groups of Army students and comparable groups of unvaccinated individuals," their paper declared. "Under these conditions the ratio of cases, vaccinated versus unvaccinated, was one to nine. At one of the universities the incidence of hospital admissions for respiratory disease was 1.1 per cent among 600 vaccinated men, while among the 1,100 unvaccinated men it was 9.9 per cent."

The report continued:

"Moreover, infections of mild degree appeared in a high proportion of the unvaccinated group and almost not at all in the vaccinated group. . . . While it might be said that the vaccinated group escaped the epidemic by chance, it should be pointed out that results at both institutions were consistent and that these observations reflected the general trend in the vaccinated Army as compared with other comparable groups when vaccination had not been employed."

Explaining their statement that "a significant effect" had been obtained for "as long as a year at least" by influenza vaccine, Drs. Francis and Salk pointed out that it was based upon the results of the vaccination of test groups during the winter of 1942-43. An influenza epidemic occurred about a year after that vaccination occurred, they said, and the incidence of the disease was found to be only 1.9 per cent among the vaccinated, as compared with 12.4 per cent among those who had not been vaccinated.

While the present writer and health workers generally are gratified over the progress which these and other research men have been reporting, he feels impelled

to pass on and emphasize Dr. Francis' and Dr. Salk's admonition against a letting down of the normal barriers against this disease and a failure to take full advantage of the protective measures which have been employed for several decades. In other words, continue to be careful and avoid influenza just as conscientiously as if these newly developed vaccines were not at hand.

As in the case of the viruses which cause the common cold, those responsible for the transmission of influenza are present in large numbers in the discharges from the mouth and nose of one of influenza's current victims. Whenever—again following the cold pattern—such a person sneezes or coughs, those viruses are sprayed into the surrounding air in the form of droplets. They may fall to the ground and remain there until they are disturbed by the shoe of a casual passer-by, or they may remain suspended in the air long enough to be inhaled by someone happening to be nearby. These droplets may also become attached to silverware, solid food or other objects and may thus pass into the bodies of other persons who place those articles in their mouths. Fortunately for the influenza situation, there seems little reason to believe that liquids, such as drinking water and milk, play a part in the mechanical transfer of these viruses. Naturally, the vast majority of cases are contracted by their direct transfer from the sick to the well by the breathing of air which has recently become virus-infected by a careless cougher or sneezer.

It usually requires about 24 hours for influenza symptoms to appear after infection has taken place, and occasionally the time is considerably longer—as much as 72 hours. When they do appear, they may make the victim think at first that he has merely contracted a bad cold, but later he cannot help realizing that there is something more serious the matter with him. The nose runs and there is a cough, as with a cold. The temperature rises sharply in practically every case. (It sometimes does but often doesn't when one merely has a cold.) There are also severe pains and soreness in the back, head and limbs, and these usually continue for a week or longer. Most marked of all influenza symptoms, however, is the feeling of complete exhaustion which comes with this disease. The victim is particularly conscious of it whenever he begins to move about after his other symptoms have disappeared.

Contrary to a widely held opinion, influenza is not a direct result of a bad cold. However, it itself may prove to be a direct cause of pneumonia. This close cause-and-effect relationship is so marked that some vital statistics reports make no effort to distinguish between the deaths caused by each but, instead, group all under the general heading "deaths due to influenza-pneumonia." In this State, however, that distinction is maintained, although no attempt is made to distinguish between deaths due to pneumonia without previous influenza and those due to pneumonia brought on by influenza.

Influenza also has this in common with a cold: It is much more infectious in the early, or beginning stage, than later. That greatly complicates the problem of preventing others from being infected, because it is while the disease is just beginning that one is most likely to be in close physical association with others. For that reason, medical opinion is not as strongly opposed to visiting influenza victims as it formerly was, on the theory that the infection danger, while not entirely over, is much less serious then than before.

During the "influenza season" which lies just ahead, everyone should be on the lookout for symptoms in himself and others, do everything possible to avoid infection and go to bed without delay whenever it becomes evident that he has joined the ranks of its victims. All should get as much exercise as possible out in the open air when the weather is favorable. Sleeping and working quarters should be kept well ventilated at all times, with, however, care to avoid sleeping or working in a draft. More attention should be paid to one's diet than at other times, although there is no occasion to become over-concerned on this score. In general, all that is necessary is to eat well-balanced meals. The intake of water should be increased, and fatigue should be kept as far away as possible by getting plenty of sleep at night. Extra rest during the day is also helpful. Wearing apparel should be adjusted to the condition of the weather. It is better to wear only enough clothing while

indoors to keep one comfortable. Then, when one goes outdoors, one should put on an overcoat or topcoat to provide the extra warmth needed to counteract the increased cold.

Although much is expected of the influenza vaccines which medical science has recently developed, too-great reliance should not be placed upon them. It will be some time yet before they will be able to curb influenza to the extent that typhoid vaccine has curbed that disease. Until that time comes, every person must assume the major share of the responsibility of keeping himself free from influenza. The simple matter of being careful and observing a few precautions may mean the difference between a serious attack, or even death, and complete freedom from the disease.

BUREAU OF LABORATORIES

H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

AUGUST 1946

Examinations for diphtheria bacilli and Vincent's	358
Agglutination tests (typhoid, Brill's and undulant fever)	1,534
Typhoid cultures (blood, feces and urine)	902
Examinations for malaria	1,368
Examinations for intestinal parasites	2,713
Serologic tests for syphilis (blood and spinal fluid)	29,677
Darkfield examinations	56
Examinations for gonococci	4,124
Examinations for tubercle bacilli	1,773
Examinations for meningococci	1
Examinations for Negri bodies (microscopic)	106
Water examinations	1,364
Milk examinations (and dairy products)	3,083
Miscellaneous	578
Total	47,637

Medical Records—Sir William Osler was fond of quoting Sir Francis Bacon: "Reading maketh the full man, conference the ready man and writing the exact man." The necessity for keeping medical records is not alone in their value as a record but even more in their influence in forcing the physician to more accurate thinking and thus to better care of the immediate patient. The excuse of the doctor that he does not have time to write a clinical record thus becomes in effect a confession that he does not have time to give the case the careful consideration to which the patient is entitled.—*Morrill, Wisconsin M. J., October* 1946.

BUREAU OF SANITATION

T. H. Milford, M. S. in S. E., Director

THE ALABAMA WATER AND SEWAGE WORKS ASSOCIATION

Contributed by

Arthur N. Beck

(*Article Published in Alabama Local Government Journal, July* 1946)

Concerted efforts on the part of the Alabama Polytechnic Institute, the University of Alabama, and the State Health Department have been made for the past several years to organize an Association of the water and sewage works profession in Alabama. For various reasons a conference to gain this end was postponed from year to year. At Auburn in May of this year the efforts of all concerned materialized. The meeting was well attended and judging by the interest shown at the first meeting or conference, the Association is assured of success.

An Association of the water and sewage works profession is and has been in existence in many states for a number of years, which has unquestionably worked to the advantage of the individual who is engaged in these works, and consequently to the communities in which these activities are essential.

The operation and control of all public water supplies in Alabama, serving a combined population of over 1.5 million people, are the responsibilities of the State Board of Health. Engineers with the State Health Department realize the seriousness of this responsibility and have aided as much as

Socialized Medicine—Doctors know some changes are necessary in the program of medical service. These are necessary, not in spite of them but because of them. Doctors, and the advances in scientific medicine, are responsible for all this change in medical care. They will welcome and help with the changes necessary to take good medicine to the people. Let us make these changes the American way from the people and by the people. Let us not make the medical profession a federal or political agency. By doing it the American way we will have better medical care and a medical order more vast and mightier than anything we know. Socialization and central control of medicine on the other hand will result in a deteriorization of medical service—directives, inefficiencies, requisitions and inevitably more unhappiness for doctors and patients.—*Mahorner, New Orleans M. & S. J., Oct.* '46.

possible in training new operators of water and sewage works on the site. When engineers visit the individual communities, an effort is made to stimulate interest by encouraging reading of the current literature and by discussing new treatment methods, care and maintenance of plants and systems, and water-works management. This service to the communities through the years has made for better water-works operation and has assured an adequate and safe public water supply to all towns and cities involved, but, when considering all factors, it is, and has been, inadequate.

It is felt that the work of the department's engineers toward better water and sewage works operation can be multiplied many times by bringing together persons engaged in these fields at regular intervals for contacts and instructions. An Association composed of managers and operators of water and sewage works appears to be one way to accomplish this end.

In order that the Association may accomplish the most good, it is anticipated that, in cooperation with the University of Alabama, the Alabama Polytechnic Institute and the State Health Department, annual short course schools will be held for the purpose of giving detailed class room instructions to those attending. The courses of instruction as proposed are to be so arranged as to best serve all of the members of the Association. In addition to material offered in the classrooms, valuable information will no doubt be gained by individual contacts with the other members attending.

In a further effort to keep water and sewage workers informed relative to the news in the field, it is proposed to publish at periodic intervals a bulletin by the Association.

We with the State Health Department feel that the conference held at Auburn this past May is the beginning of an Association that will pay dividends to practically every community in the State. We are confident that the program will receive the endorsement of all municipal officials and that the responsible officials will encourage and insist that their water and sewage works personnel take an active part in the Association.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES, JUNE 1946, AND COMPARATIVE RATES FOR 1946, 1945 AND 1944

Births, Stillbirths, and Causes of Death	Number Registered—During June 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births, exclusive of stillbirths	5490	**	**	23.1	23.1	23.5
Stillbirths	180	**	**	31.7	28.5	32.7
Deaths, exclusive of stillbirths	2058	1248	810	8.7	7.6	8.8
Infant deaths:						
Under one year	220	127	93	40.1	39.3	53.7
Under one month	174	103	61	31.7	25.1	35.0
Typhoid and paratyphoid 1, 2	1	1		0.4	0.8	0.8
Epidemic cerebrospinal meningitis 6	3	2	1	1.3	2.1	4.6
Scarlet fever 8						
Whooping cough 9	4	2	2	1.7	4.6	4.6
Diphtheria 10	1	1		0.4		
Tuberculosis, all forms 13-22	78	32	46	32.8	43.7	40.6
Malaria 28	5	2	3	2.1	1.7	1.2
Syphilis 30	21	4	17	8.8	13.0	13.7
Influenza 33	9	7	2	3.8	3.4	6.2
Measles 35	5	3	2	2.1		2.9
Poliomyelitis 36	2	2		0.8	0.4	0.8
Encephalitis 37	1	1		0.4	0.8	0.8
Typhus fever 39	3	2	1	1.3	0.8	1.6
Cancer, all forms 45-55	191	130	61	80.3	68.1	73.3
Diabetes mellitus 61	22	16	6	9.2	9.2	7.9
Pellagra 69	7	4	3	2.9	2.5	3.7
Alcoholism 77	4	3	1	1.7	1.7	
Intracranial lesions 83	200	130	70	84.1	76.9	72.4
Diseases of the heart 90.95	453	289	164	190.4	149.3	170.2
Diseases of the arteries 96.99	20	15	5	8.4	10.1	11.6
Bronchitis 106	5	2	3	2.1	0.4	2.5
Pneumonia, all forms 107-109	67	37	30	28.2	25.6	38.5
Diarrhea and enteritis (under 2) 119	15	6	9	6.3	10.1	17.8
Diarrhea and enteritis (2 and over) 120	9	4	5	3.8	0.4	3.7
Appendicitis 121	9	7	2	3.8	8.8	8.3
Hernia, intestinal obstruction 122	22	12	10	9.2	8.0	7.0
Cirrhosis of the liver 124	9	5	4	3.8	2.5	5.8
Nephritis, all forms 130-132	161	99	62	67.7	59.7	70.4
Puerperal causes 140-150	9	3	6	15.9	21.2	34.1
Puerperal septicemia 140, 142a, 147	2		2	3.5	7.1	10.2
Suicide 163-164	25	24	1	10.5	3.8	4.1
Homicide 165-188	36	15	21	15.1	8.0	11.2
Accidental deaths, exclusive of motor vehicle 169, 171-195	116	72	44	48.8	47.1	52.6
Motor vehicle 170	57	36	21	24.0	15.1	12.4
All other known causes	355	235	120	149.2	111.4	153.2
Ill-defined and unknown causes, 199.200	133	45	88	55.9	60.1	71.6

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births, deaths from specific causes per 100,000 population; deaths from puerperal causes per 10,000 total births. All rates are based upon the June report of the years specified.

**Not available.

MEDICAL NEWS

(Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.)

Twenty prominent medical leaders have been named members of the National Medical and Scientific Advisory Council of the National Arthritis Research Foundation in a joint statement issued from the New York offices of the Foundation, 11 West 42nd Street, by Hon. A. B. Frey, St. Louis, President, Lionel Barrymore, Chairman of the National Board of Sponsors, and Louis Kranitz, St. Joseph, Missouri, Chairman of the National Campaign Committee.

All research and medical activities of the Foundation will be under the direction of this Council. The Foundation was organized recently for the purpose of attacking the problem of the causes, cure and prevention of arthritis and those rheumatic diseases directly related to it.

A research center is to be built at Hot Springs National Park, Arkansas, national headquarters of the Foundation, to house the principal laboratories and the Foundation's own staff. In addition, grants-in-aid are to be made to various universities and other research centers to carry out correlated investigations.

The formal opening of the Foundation's campaign to raise $2,500,000 to promote its work took place at a dinner at the Waldorf-Astoria Hotel in New York on October 7th under the chairmanship of Mr. Spyros P. Skouras, President of Twentieth-Century Fox Film Corporation.

The members of National Medical and Scientific Advisory Council represent eleven medical specialties, including arthritis, bacteriology, general medicine, heart, metabolism, nutrition, orthopedics, pathology, physical medicine, physiology and virology.

The names of the members of this Council follow:

Dr. Guy A. Caldwell, Professor of Clinical Orthopedics, Tulane University, Louisiana School of Medicine; Dr. Paul Roberts Cannon, Chairman of the Department of Pathology, University of Chicago, School of Medicine; Dr. Albert Eugene Casey, Assistant Professor of Pathology, Medical College of Alabama; Dr. Edward Lyon Compere, Orthopedic Surgeon and Associate Professor of Orthopedics, University of Illinois, School of Medicine; Dr. Harry James Deuel, Jr., Bio-Chemist, University of Southern California, School of Medicine;

Also, Dr. Herbert McLean Evans, Professor of Anatomy and Director of the Institute of Experimental Biology, University of Chicago; Dr. Frank Wilbur Hartman, Pathologist and Director of Laboratories of Ford Hospital, Detroit; Dr. Andrew C. Ivy, Professor of Physiology and Dean, University of Illinois, College of Medicine; Dr. Howard Thomas Karsner, Professor of Pathology of Western Reserve School of Medicine; Dr. Frank Krusen, in charge of the Section on Physical Medicine, Mayo Clinic;

Also, Dr. James Somerville McLester, Professor of Medicine, University of Alabama, School of Medicine; Dr. Karl F. Meyer, Professor of Medicine and Director of the George Williams Hooper Foundation for Medical Research, University of California; Dr. Josiah J. Moore, Director of the Moore Clinical Laboratory, Chicago; Dr. Franklin Richards Nuzum, Director of Cardio-Vascular Research at the Santa Barbara Cottage Hospital; Dr. Hobart Ansteth Reimann, Professor of Medicine, Jefferson Medical College, Philadelphia;

Also, Dr. Howard A. Rusk, New York Times and consultant for the Baruch Committee on Physical Medicine; Dr. Willard Haywood Squires, New York Hospital for Special Surgery; Dr. William Daniel Stroud, Cardiologist, Philadelphia; Dr. Harry Winkler, Orthopedic Surgeon, Charlotte, North Carolina, and Dr. Charles W. Wainwright, Assistant Professor of Medicine, Johns Hopkins University.

* * *

Fundamental changes in the organizational structure of the American National Red Cross—the most important and far-reaching changes in 40 years—were adopted by the present governing body, the Central Committee, at its September meeting in Washington.

The changes were recommended by a nationally representative Advisory Committee, appointed last March by Basil O'Connor, National Chairman, to study the organization of the Red Cross in the light of the tremendous growth in its membership and services to the people since 1905 when its present Congressional Charter was granted.

Announcing the action, after transmitting the recommendations to the chapters, Mr. O'Connor said they are of greatest significance to the Red Cross organization at all levels. "When they have been carried into

effect," he said, "the governing body of the Red Cross will be predominantly representative of, and will be responsive to, the chapters, with full representation of the national interests which it is the obligation of the Red Cross to serve. This should insure that the organization will be an appropriate and efficient instrument, reflecting the needs of all the people, to direct and guide the Red Cross in its fields of service in the coming years."

The recommended revisions to the organization's charter, unchanged since 1905, provide at the national level for greatly increased representation from the chapters, and from the public at large, on the national governing body and provide at the chapter level for participation by the membership in all chapter operations. Most significant changes include:

(1) Expansion of the present governing board from 18 members to 50 members, 30 of whom would be drawn from local chapters under a system of nomination and election and 12 of whom would be elected to represent the national interests at large.

(2) A system of regular rotation in office of the governing bodies in chapters as well as in the national organization.

(3) Discontinuance of the Board of Incorporators provided for in the 1905 Charter.

(4) A provision enabling any 25 members to appeal to the national organization basic grievances as to matters of chapter procedure.

(5) A provision allowing the establishment of committees chosen by the chapters within each state for the purpose of liaison with state relief, health and welfare agencies.

(6) A new system of auditing separately all accounts of local chapters as well as of the national organization.

(7) Elimination of present classification of memberships according to sums contributed.

The twenty-seven member Advisory Committee on Organization which prepared the resolutions was made up of prominent citizens from all sections of the United States.

E. Roland Harriman, New York, of the firm of Brown Brothers, Harriman and Company, and until recently volunteer manager of the Red Cross North Atlantic Area, served as Chairman. In presenting his report to the Central Committee, Mr. Harriman said, "The broad objective of this committee is two-fold: (1) to make certain that all the American people who constitute the American National Red Cross have adequate representation in shaping its policies and (2) to review its organization to insure the most effective handling of its programs."

At present the Central Committee or governing board of the Red Cross consists of 18 persons. Six are chosen by chapter delegates; six appointed by the President of the United States; and six named by the Board of Incorporators, a body of 65 persons initially named in 1905 for the purpose of bringing the corporate organization into being. The Incorporators have elected their own successors since that time. The President of the United States appoints the national chairman as well as five other members to the Central Committee from the Departments of State, War, Navy, Treasury, and Justice.

Under the proposed changes in the 40-year old charter, the size of the Central Committee would now be increased to 50 members and its name would be changed to "The Board of Governors." Of these fifty members, 30 would be elected by delegates of the chapters at the National Convention, held each year; 12 would be elected by the Board of Governors itself, as members-at-large; 8 would be selected by the President of the United States, of whom one would be designated by him as President of the Red Cross. Among those selected by the President of the United States from government departments and agencies, at least one and not more than three would be chosen from the armed forces. The election of the governors by the chapters at the national conventions would be under procedure insuring geographical distribution as well as representation of chapters of all sizes.

The twelve members-at-large would be chosen with a view to obtaining outstanding individuals with national interests which it is the function of the Red Cross to serve. Twenty governors would constitute a quorum at any stated meeting. Under the new plan special meetings could be called by either the Red Cross president or by any 10 governors. At least four general meetings each year were termed as "most desirable."

The term of office of all "governors" would be three years. At the beginning, however, the first 42 governors elected would be divided into three classes with terms expiring at the end of one, two, and three years so that one-third of the elected membership would be chosen each year.

Any elected governor who had served two full three-year terms would be ineligible for re-election for at least two years. According to the Advisory Committee chairman, such rotation would provide a means for bringing fresh leadership into the governing body.

The proposed charter revisions would make the President of the United States the "Honorary Chairman" of the Red Cross. The only other honorary officers would be the Attorney General who would be called honorary counselor, and the Secretary of the Treasury would serve as honorary treasurer. All the present honorary vice presidencies would be abolished, as would the present Board of Incorporators and the honorary bestowal of large group memberships. In addition to the present War Department audit, there would also be an audit by independent certified public accountants to obtain both the advantage of a professional audit and a War Department review.

It is proposed that the new charter set up definite procedures for chapter organization and chapter elections to insure maximum representation of all the membership. Chief among these would be a system of rotation in office (the same as is proposed for the national organization) and appropriate nominating procedures.

Mr. O'Connor called attention to the following comment in the advisory committee's report: "The national organization of the Red Cross has left considerable latitude to the chapters in the framing of their organizations. The Committee believes that a high degree of flexibility and local chapter autonomy is necessary and desirable in view of the variations in the conditions in the communities of the country which the Red Cross organization serves, of geographical considerations and of the fact referred to above that, by its nature, the Red Cross in action cannot and should not be a centralized, closely knit organization. The continual introduction of fresh personnel in the governing body by a system of rotation is as important in the chapters as in the national organization, and perhaps more so."

Under the new plan any 25 members of a chapter could appeal to the national organization's Board of Governors basic grievances alleging undemocratic practices in the local unit.

To permit the Red Cross to maintain closer contacts with state agencies, particularly in the fields of relief, health and welfare, the new plan contemplates that the chapters within any state may set up a state-wide committee for liaison purposes, Mr. O'Connor pointed out.

The Red Cross, he added, will be open to the entire nation, and the organization of the local chapters will be free and democratic. The governing body of the Red Cross will be predominantly representative of, and will be responsive to, the chapters. The national interests, and the particular interests of the various groups which it is the obligation of the Red Cross to serve, will be represented on the governing body by the 12 members-at-large.

* * *

The Department of Medicine and Surgery of the Veterans Administration is in critical need of physicians to work in the specialty of physical medicine.

Appointments are available at hospitals, regional offices and subregional offices in Georgia, Alabama, Tennessee, Florida and South Carolina, according to Dr. Frank B. Brewer, VA's southeastern medical director.

Physicians interested in further details may contact Dr. Brewer by collect telephone or telegraph at the VA's southeastern branch office in Marietta, Georgia.

* * *

The new Memorial Laboratory of the U. S. Public Health Service will be open for inspection from November 11 through November 23, 1946. Devoted to the study of infectious diseases, and planned to provide utmost safety for the scientists and technicians who will work in it, the building forms part of the group at the National Institute of Health in Bethesda, Maryland. A cordial invitation is extended to the general public to visit the Laboratory during the "open house" period.

* * *

The American Academy of Allergy will hold its annual convention at Hotel Pennsylvania, New York City, November 25-27 inclusive. All physicians interested in allergic problems are cordially invited to attend the

sessions as guests of the Academy without payment of registration fee. The program has been arranged to cover a wide variety of conditions where allergic factors may be important. Papers will be presented dealing with the latest methods of diagnosis and treatment as well as the results of investigation and research. Advance copies of the program may be obtained by writing to the Chairman on Arrangements, Dr. Horace S. Baldwin, 136 East 64th Street, New York City, prior to November 10th.

* * *

The initiation of a nationwide program of public education and information on diseases of the heart has been announced by officials of the American Heart Association, Inc.

The program, according to Dr. Howard F. West, of Los Angeles, president of the association, will have as its prime purpose "the dissemination of educational information to the public in a broad effort to retard the rapid increase of heart disease throughout the nation.

"Fatalities ascribed to diseases of the heart," Dr. West said, "are greater than the total of the next five leading causes of death. It is essential, therefore, that the public know more about the significance of blood pressure, infections, overweight, rheumatic fever, and other factors which contribute to various types of heart disease."

It is estimated that there are more than 4,000,000 people in the United States today who have heart disease. Diseases of the heart and blood vessels, including cerebral hemorrhage, accounted for 575,000 deaths in 1944. Fatalities from the five other leading causes in 1944 were as follows:

Cancer	171,000
Accidental Deaths	95,000
Nephritis	92,000
Pneumonia	64,000
Tuberculosis	55,000

In addition to accounting for more fatalities than these five causes combined, heart diseases are responsible for an annual loss of more than 100,000,000 work days.

Officials of the American Heart Association state that the Association's program will call for emphasis on educational work with schools, parent-teacher associations and other groups concerned with children because of the importance of rheumatic fever and heart disease. According to recent surveys, this scourge of children causes more than five times as many deaths as the combined total of deaths from infantile paralysis, scarlet fever, diphtheria, measles, meningitis and whooping cough. It is a serious disease among adults, too, as illustrated by the estimated 40,000 veterans who acquired the disease during their recent military service.

The War forcibly dramatized the need for a national health program designed to retard the increase in heart disease cases. An estimated ten per cent of the men rejected by the U. S. Selective Service were disqualified because of cardiovascular diseases. In a survey of a special sampling of 5,000 rejectees for cardiovascular diseases in five major cities—Chicago, New York, Boston, Philadelphia, San Francisco—50% had been disqualified because of rheumatic heart disease. The second greatest cause of rejection due to cardiovascular diseases was hypertension, which accounted for 25.6% of the disqualifications.

The educational campaign of the American Heart Association will reach its climax during National Heart Week to begin on February 9, 1947, which includes St. Valentine's Day. It is expected that all branches of medicine, pharmacy, insurance, industry and many other groups interested in health and public welfare will cooperate fully.

Supporting and cooperating groups will include the following national organizations which comprise the American Council on Rheumatic Fever of the American Heart Association:

American Academy of Pediatrics
American Association of Medical Social Workers
American College of Physicians
American Hospital Association
American Medical Association
American Nurses Association
American Public Health Association
American Rheumatism Association
American School Health Association
National Organization of Public Health Nursing
National Society for Crippled Children and Adults

The collaboration of the United States Public Health Service, National Tuberculosis Association and others is expected.

Local Heart Associations and affiliated groups in such cities as New York, Washing-

ton, Chicago, Boston, etc. will assist in the national campaign.

* * *

At the Centennial Session of the American Medical Association to be held in Atlantic City, June 9 to 13, 1947, the Scientific Exhibit will include both the history of medicine during the past century and the latest developments of medical science.

Application blanks for space are now available. All applicants must fill out the regular form. Applications close on January 13, 1947, after which time the Committee on Scientific Exhibit will make its decision and notify the applicants.

Application blanks for space should be procured as soon as possible. They are available from The Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

* * *

At meetings in Washington, Friday and Saturday, October 4 and 5, 1946, the Association of Honorary Consultants to the Army Medical Library urged early action for a new library building. Major General Norman T. Kirk, The Surgeon General of the Army, at a dinner for the members of the Association Friday evening at the Hotel Statler, said that it was planned to ask Congress at the next session for enabling legislation to build the library and that it was hoped to include the request for funds in the 1948 budget. The 110 year old Library is now housed in a non-fireproof structure which was built in 1887. Other addresses at the dinner, which was presided over by Dr. John F. Fulton, Professor of Physiology of Yale University and President of the Association, were given by Colonel Leon L. Gardner, The Director of the Library; Professor Max H. Fisch, University of Illinois, former Chief of the Medical History Division, Army Medical Library, and Dr. Reginald Fitz, Lecturer on Historical Medicine, Harvard University.

At the professional meeting on Saturday morning, The Director of the Library spoke on Widening Horizons, mentioning particularly the large gain in acquisitions the Library has made during the past year. Mr. Wyllis E. Wright, The Librarian, Army Medical Library, discussed the problem of avoiding duplication in Federal libraries. The program also included Dr. Morris Fishbein of the American Medical Association, on "I Thee Endow"—a permanent fund for the Association; Miss Mary Louise Marshall of Tulane University Medical Library, on a new medical classification; Dr. Chauncey D. Leake of the University of Texas School of Medicine, on regional representatives for the Association; Dr. Luther H. Evans, Librarian of Congress, on coordinated service—Library of Congress and the Army Medical Library.

During Saturday afternoon, members of the leading medical publishing houses met with Colonel Gardner in a discussion of the difficulties encountered through microfilm copying. It was agreed that a code should be drawn up for the mutual benefit of libraries and medical publishers and to protect authors' copyright interests.

* * *

Appointment of Miss Dorothy V. Wheeler, executive secretary of the New York City Nursing Council, as director of nursing service in the Veterans Administration department of medicine and surgery, was announced by Dr. Paul R. Hawley, VA chief medical director. The appointment was effective Oct. 1.

Miss Wheeler, a native of Missouri, obtained her RN from Washington University, St. Louis, in 1935 and her Bachelor of Science degree from Ohio State University in 1938.

Miss Wheeler has worked as a general duty nurse at University Hospital, Columbus, Ohio, and also was head nurse and supervisor of medicine and surgery there. She has been instructor of nursing at Meriden, Conn., and at New York Medical College (Flower and 5th Ave. Hospital) where she served as director of nursing.

She was nurse consultant in the National Nursing Council from January to June, 1935, and also nurse consultant in the U. S. Employment Service, from August to December, 1945. She held the latter position concurrently with her present position as executive secretary of the New York City Nursing Council.

Miss Wheeler is a member of the American Nurses Association, the National League

of Nursing Education and the National Organization of Public Health Nursing.

* * *

The American Board of Obstetrics and Gynecology announces that the next written examination (Part I) for all candidates will be held in various cities of the United States and Canada on Friday, February 7, 1947, at 2:00 P. M. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year. All applications must be in the office of the Secretary by November 1, 1946. Candidates in military service are requested to keep the Secretary's Office closely informed of changes in address.

A number of changes in Board regulations and requirements were put into effect at the last annual meeting of the Board held in Chicago, Illinois, from May 5 to May 11, 1946. Among these is the requirement that case records must now be forwarded to the Secretary's Office from thirty to sixty days after the candidate has received notice of his eligibility for admission to the examinations for certification. At this meeting the Board also ruled that it will not accept the nine months' residency as an academic year toward years of training requirements following the termination of the official period of intern and residency acceleration, April 1, 1946.

Applications are now being received for the 1947 examinations. For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, Pa.

BOOK ABSTRACTS AND REVIEWS

Peripheral Vascular Diseases. By Edgar V. Allen, B. S., M. A., M. D., M. S. in Medicine, F. A. C. P., Division of Medicine, Mayo Clinic; Associate Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota; Diplomate of the American Board of Internal Medicine; Nelson W. Barker, B. A., M. D., M. S. in Medicine, F. A. C. P., Division of Medicine, Mayo Clinic; Associate Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota; Diplomate of the American Board of Internal Medicine; and Edgar H. Hines, Jr., M. D., B. S., M. A., M. S., in Medicine, F. A. C. P., Division of Medicine, Mayo Clinic, Associate Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota; with associates in the Mayo Clinic and Mayo Foundation. Cloth. Price, $10.00. Pp. 871, with 386 illustrations, 7 in color. Philadelphia and London: W. B. Saunders Company, 1946.

From the experiences of the Mayo Clinic has come a new volume dealing with the diseases of the vascular system, including those affecting the aorta and lymphatics. There is much in the book which is new and its content should appeal both to the diagnostician and surgeon, even though details of surgical operations are not included.

In the chapter on the symptoms of vascular diseases, the authors discuss the types of pain resulting from these disturbances, the color changes in the limbs, the swelling of the extremities, the temperature changes, the disturbances in arteriole circulation, and the pathologic physiology of varicose veins.

Many of the special instruments and special diagnostic procedures used in vascular diseases are discussed; such as, angiography and arteriography, oscillometry, peripheral temperature studies, venous pressure, circulation time, histamine flare test, and capillary fragility. A section deals with nail-fold capillaries in vascular diseases and with disturbances in the sweating function.

The diseases described in this book include a few more than a physician would ordinarily think of—Raynaud's disease, scleroderma, frost bite, erythromelalgia, scalenus anticus syndrome, arterial occlusion, arteriosclerosis, thrombo-angeitis obliterans, periarteritis nodosa, aneurysm, arteriovenous fistula, tumors of blood vessels and lymphatics, venous obstruction, thrombophlebitis, pulmonary embolism, varicose veins, varicose ulcers, and lymphedema.

Forms of medical and surgical treatment are described in detail except that the reader is referred to text-books of surgery for details of surgical procedures.

C. K. Weil

Facial Prosthesis. By Arthur H. Bulbulian, M. S., D. D. S., F. A. C. D., Director, Museum of Hygiene and Medicine, the Mayo Foundation, Rochester, Minnesota. Cloth. Price, $5.00. Pp. 241, with 202 illustrations. Philadelphia and London: W. B. Saunders Company, 1946.

This is an atlas in all respects. It is an excellent guide for those who are interested in the reconstruction of lost parts of the face, particularly those of the nose and ear. It is, therefore, of vast importance to the plastic surgeon and to the dental surgeon. To the general practitioner a simple perusal through it is sufficient to acquaint him with what can be done in these devastating

deformities as the result of injury during the war, injury during civilian life, or injury due to malignancies.

The prosthesis that is used must have several considerations. First, it should have a normal appearance, such as color, texture and translucence. It should also be easily adaptable and retained without too much difficulty. It is necessary for such prosthesis to be seriously studied, not only for a physical appearance but also for psychologic reasons. These deformities are being incurred not only by the war injuries, but also by industrial injuries; and particularly injuries occurring with the high speed automobiles, airplanes and other modes of travel.

The mechanisms, the instruments, and laboratory details are excellently reproduced photographically. The photographs of "before" and "after" are superb. Not only must the author be congratulated on his selection and his results but also the members on the section of photography must be congratulated for their excellent reproductions. The W. B. Saunders Company is to be complimented both on the fine texture of paper, the high quality of printing and the very excellent reproductions of photographs selected.

All in all, the atlas is a necessity to the plastic surgeon. It is a valuable asset to the dental surgeon, and it is an interesting atlas for the general practitioner to review at his leisure. It is highly recommended for all such purposes.

Norman Van Wezel

Penicillin and Other Antibiotic Agents. By Wallace E. Herrell, M. D., M. S., F. A. C. P., Assistant Professor of Medicine, the Mayo Foundation, University of Minnesota; Consultant in Medicine, Mayo Clinic, Rochester, Minnesota. Cloth. Price, $5.00. Pp. 348, with 45 illustrations. Philadelphia and London: W. B. Saunders Company, 1946.

This is a text which reads like a narrative. It is very opportune in its publication because penicillin, streptomycin and other similar agents are so very important in the modern practice of medicine.

The book contains an excellent table of contents. It is divided briefly into several parts. The first third of the book is historical in content and somewhat technical. It deals with the various methods of production of penicillin, as well as its preparation, standardization and administration.

The next third deals with the clinical use of penicillin and this, of course, is the most important part of the book to the clinician. It deals with the use of penicillin in the diseases of importance, such as endocarditis and meningitis; it deals with the various types of meningitis—that is, the meningococcus, pneumococcus and other cocci. It then goes into the treatment of diseases by systems; that is, those diseases affecting the respiratory system, such as sinusitis, pneumonia, lung abscess and infections of the pleural cavity; infections involving the skeletal system, particularly acute and chronic osteomyelitis; and infections affecting the skin and the genito-urinary tract, with special emphasis upon gonorrhea.

The last third deals with the other agents, which include tyrothricin, streptothricin, streptomycin, etc. The details regarding these from a clinical standpoint are very scarce because at the time of publication the material was not widely available.

All in all, for a concise and timely text on the subject of the antibiotics, Herrell's book is worthy of consideration. It unquestionably will be outmoded rapidly by newer and more complete works. However, the first third will not change but the clinical application and results, and particularly the use of the newer biotics, will alter the usefulness of this text as time goes on. A revision of the book with these newer facts will certainly be indicated within the next year or two.

Norman Van Wezel

AMERICAN MEDICAL ASSOCIATION NEWS

DOCTOR URGES HEART PATIENTS TO LIVE NORMAL, USEFUL LIVES

JOURNAL AUTHOR BELIEVES PEOPLE CAN BE MADE HAPPIER IF THEIR PHYSICAL ACTIVITIES ARE UNRESTRICTED

A Philadelphia physician states that many patients who have serious complications of the heart can be reassured and allowed to live normal lives, according to the October 19 issue of The Journal of the American Medical Association.

William D. Stroud, M. D., who is on the board of directors of the American Heart Association, points out that there are "many murmurs, especially in the pulmonic area, which are absolutely of no importance from the standpoint of circulatory efficiency or length of life. In fact, many children with definite valvular damage live the full span of life and others do not develop circulatory insufficiency until the third, fourth or fifth decade. Certainly their lives can be much happier if their physical activities are unrestricted, and I doubt whether the normal physical activity of childhood plays any part in the progress of the pathologic lesion."

Medicine can aid patients with heart trouble to lead practically normal lives, according to Dr. Stroud. "Most people with coronary insufficiency know the things that bring on pain, such as walking after meals

or in cold weather against the wind," he states. "If it is necessary for these persons to make such effort, it is perfectly possible for them to ward off an attack by dilating the coronary vessels with a tablet of glyceryl trinitrate before making such an effort."

Dr. Stroud is of the opinion that patients with heart trouble should be permitted to smoke and drink.

"Most people who smoke know whether or not they are sensitive to nicotine," he said. "If a man is not sensitive to nicotine, I believe it is perfectly safe for him to smoke. However, sensitive or not, in the presence of angina of effort or a healed coronary occlusion if a person is having substernal pain I believe eliminating tobacco will tend to lessen the frequency of attacks of pain.

"Many physicians advise patients with hypertension or coronary artery disease or any form of heart disease not to drink. For myself I see no reason why patients with these conditions should not drink in moderation. Many patients with angina of effort secure as much relief from brandy or whiskey as they do from glyceryl trinitrate and I can see no reason why they should be deprived of the pleasure of drinking unless there is some evidence that alcohol is injurious."

The author holds out further hope for the heart disease patient by concluding in this optimistic tone: "I feel that the average patient with a healed coronary occlusion can return to a sedentary occupation part time in about three months. Although it is debatable, because of the possibility of further occlusions, I believe it is safe to allow such patients to drive a car three months or so after their acute episode. Also if they do not have angina of effort three or four months after their original attack any mild form of exercise such as golf or swimming in warm water seems indicated, if desired. It is my feeling that too many such patients are made total invalids unnecessarily. In fact, it is my experience that after adequate collateral circulation has developed it really doesn't seem to matter what activities these persons carry on within reason from the standpoint of developing further coronary occlusions. Certainly a patient is a happier and more useful member of his community if he can lead an approximately normal life."

STREPTOMYCIN FOUND EFFECTIVE IN MILD INFLUENZAL MENINGITIS

A highly fatal disease—influenzal meningitis—is yielding to the therapeutic power of streptomycin.

Four medical investigators, writing in the October 26 issue of The Journal of the American Medical Association, state that complete recovery is possible when this new antibiotic drug is used in cases of average severity.

A total of 25 patients were studied at the Babies Hospital and the Department of Pediatrics, Columbia University College of Physicians and Surgeons by Hattie E. Alexander, M. D., and Grace Leidy of New York, and at the Squibb Institute for Medical Research by Geoffrey Rake, M. B., B. S., and Richard Donovick, Ph.D., of New Brunswick, N. J.

Influenzal meningitis is an inflammation of the meningeal membrane which forms the tender lining of the spinal cord. This disease which is caused by a bacillus should not be confused with true influenza, which is a virus infection.

Twelve patients whose infections were mild or moderately severe recovered promptly and completely after treatment with streptomycin. The duration of infection prior to streptomycin treatment was less than eight days in all cases.

The other 13 patients, the majority of whom had the severe form of the infection, received rabbit antiserum, sulfadiazine and streptomycin. Three of the patients with the severe chronic form of the disease died.

The investigators point out that "in the severe infections the results suggest that therapeutic failure will be reduced to a minimum by the initial use of all three agents, i. e., rabbit antiserum, sulfadiazine and streptomycin."

Speaking of the 22 patients who survived, the authors state that "although it is appreciated that the increase of survivals in this group may increase the incidence of mentally defective children, this therapeutic program must be given a trial until it is demonstrated that all the patients who recover from such infections show severe permanent mental deterioration."

OUTLOOK FOR CHILDREN WITH DIABETES

"What chance has a seven year old child of recovering from diabetes?" a reader asks in the current issue of Hygeia, health magazine of the American Medical Association.

"Complete cure of diabetes (that is, elimination of this condition) is not possible," states Hygeia. "However, as a result of medical advances it is possible to assure the average diabetic child of practically as long a life as any other person. In fact, at least one insurance company is now accepting policy applications from diabetics. It must be realized though that rather strict supervision is necessary in all patients with diabetes and frequent medical consultation is advisable."

CHILDREN BORN WITH SYPHILIS RESPOND WELL TO PENICILLIN TREATMENT

In a study of 61 children, two Atlanta physicians have found that penicillin is effective in the treatment of congenital syphilis.

Congenital syphilis—a term usually associated with children who are born with the disease—is transmitted to an embryo while it is still in the womb. The infected mother's blood carries the corkscrew-like spirochetes to the infant's body. Many or all of the embryonic organs are affected.

Drs. Joseph Yampolsky and Albert Heyman, who are from the Departments of Pediatrics and Medicine of Grady Memorial Hospital and Emory University School of Medicine in Atlanta, used penicillin to treat the 61 syphilitic children, according to the October 19 issue of The Journal of the American Medical Association.

Thirty-two of the 61 children had simple infantile congenital syphilis. Twenty-three of the 32 responded satisfactorily under the penicillin treatment. "All 23 are clinically well, have normal spinal fluids and exhibit no clinical evidence of the disease," the authors say.

While three of the patients died, the authors believe that the fatalities were in no way related to the treatment. Two of the deaths "apparently resulted from an overwhelming syphilitic infection in premature and malnourished infants, while the third fatality remains unexplained."

In discussing the remaining 29 patients, the Atlanta doctors say that seven were suffering from acquired primary and secondary syphilis, while the others were treated for late forms of congenital syphilis.

In the seven cases of acquired syphilis, the doctors say the patients were treated with doses of penicillin comparable to those used in adults. "The syphilitic lesions healed promptly in every case and the spirochetes disappeared rapidly," The Journal article says, adding: "All of these children have been followed for at least six months.

"The results obtained with penicillin in the treatment of syphilis in children seem to depend on the nature and duration of the disease. Although penicillin appears to be effective in the treatment of infantile congenital syphilis and in early neurosyphilis, little or no response can be expected in the treatment of the late manifestations of this disease."

Drs. Yampolsky and Heyman say that while the optimum dosage of penicillin cannot be determined in such a small series of cases, "we believe that a total dose of penicillin of 100,000 units per kilogram of body weight is effective in the treatment of the majority of these cases."

PENICILLIN MAY CAUSE NERVE INJURY

Two Navy doctors suggest that penicillin may cause injury to the nerves running to the surface of the body with resultant loss of sensation and muscular power, according to the October 12 issue of The Journal of the American Medical Association.

Comdr. Lawrence C. Kolb, (MC), U. S. N. R., and Lieut. Comdr. Seymour J. Gray, (MC), U. S. N. R., state that they observed this muscular weakness in seven patients treated with penicillin injections into the muscles at the U. S. Naval Hospital, National Naval Medical Center, Bethesda, Md.

The nerve injury observed in all the cases occurred from 10 to 21 days after the initial injection of penicillin. The number of penicillin injections into the muscles given prior to these symptoms varied from 10 to 72.

The authors point out that complete recovery from the neuritis occurred within four months in five of the seven patients.

ANNUAL SESSION
BIRMINGHAM
APRIL 15-17, 1947

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BACKGROUND

OVER THREE DECADES OF CLINICAL EXPERIENCE

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THE PHYSICIAN'S RESPONSIBILITY TO SOCIETY

CHAUNCEY SPARKS
Governor of Alabama
Montgomery

I am proud of the opportunity of making this, the first, commencement speech at the new Medical School in Alabama.

It is a privilege which I have longed for during my administration, because it is the realization of one of my fondest dreams. I hope now it *is* a reality. I feel sure it is, and that from henceforth we shall proceed to reap the benefits of an institution long overdue.

For we know that the supply of doctors in Alabama is gradually diminishing and that we were providing no method of replacement. Many communities had ceased to have adequate medical services, due perhaps to more than one thing, among which was the scarcity of physicians.

But not only was there need for education of doctors and perhaps of personnel to serve our people with better health; we needed also to understand the relationship of the physician to public health.

Perhaps we have discovered a new urge and a new inspiration in the founding of this college, and we have departed considerably from the old idea of academic preparation and scientific training as the only preparation for a doctor.

In that discovery and in the conception and construction of this college the doctors of Alabama have been a great assistance. Without their feeling of a need for the institution and their urgency with the Legislature, and their continuous, and, believe it or not, unanimous support, it is doubtful we could have gone so far in the establishment of this, a creditable medical college. Not only the doctors but also the Legislature responded to our appeal in a most cordial manner, and with adequate sums to provide unusual facilities for a school just beginning the teaching of medicine.

I should be derelict if I did not pay compliment to the Medical Building Commission which has so carefully, conscientiously, and sacrificially worked to make this dream come true. They are among the best citizens of the State and gave of their time and talent to create an institution worthy of the great people of Alabama. I want to thank them publicly for what they have done and for what inspiration and cooperation they have afforded me, and those with me, in the creation of such an institution as this.

You occupy a double position of honor. You are not only graduating from this college which has just begun in Alabama but you are also the first to graduate from it. The implication of such a position must be apparent to all of us. You are the first representatives of the medical school of Alabama created by the 1943 Legislature to go into the service of our people in the practice of medicine. It can be so easily said that this institution will be judged by your conduct, your success and your ideals. The responsibility, therefore, rests upon your shoulders to take the message of the Medical School back to the people and the community in which you cast your life. Let the people

Address delivered at the commencement exercises of the Medical College of Alabama, Birmingham, October 25, 1946.

know by your words and acts we have started something that will promote the welfare of our people as much as anything that has been started in recent years. Of course, if you fail the institution fails. If you falter and make a failure of your own life, of the profession to which you have dedicated that life, then you cast a reflection upon this institution and the people whose confidence and ultimate support are essential.

Personally, I have no fear of this happening, for I am sure in your election to attend this institution, and your background, and your purposes, and your ambition, the State can have implicit confidence that you will help carry on what we here have this far advanced.

As you go out into society, whether as healers of the sick, of the mentally distressed, or as participants in the activities of mankind, politically and otherwise, you carry an additional responsibility to that of your professional obligation.

We must know and understand that education today is at the foundation of future democracy. Whatever our democracy might be hereafter, whatever political philosophy our people may subscribe to, will be determined largely by our current educational processes. I take it this does not mean that one who dedicates himself to a profession like medicine, or law, or ministry, shall be set aside and apart from the current of life. He becomes a vital part in public opinion if he exercises the responsibility and fulfills the duty of citizenship. The character of our education determines the character of our people, and, incidentally, the character of our government.

This, I am sure, is just as true of a medical school as it is of an academic school, of a trade school, of a professional school, or any other kind, even our elementary schools.

Our education must develop that quality of leadership which current needs require and changing conditions make essential. If it does not, then it fails almost totally in its purposes. One who goes through the elementary schools of our State and does not understand the responsibilities and duties of good citizenship has failed to benefit by his education, or the training offered him.

It is easy to say that democracy depends upon education; that platitude we all subscribe to and often use thoughtlessly. Democracy does depend upon education, but its success will not be assured unless that education is of the quality essential to the promotion of genuine democratic principles.

For, after all, democracy, we must understand, is a philosophy of political conduct, not the leveling of all things. Democracy is a form of representative administration established by the people. You can readily see that ignorance and unavailing education will make, not democracy, but a poor substitute therefor, or dictatorship.

Democracy should be defended internally as well as externally. Yes, we have recently fought a war to preserve democracy. We have maintained the kind we have, but have we justified it, have we purged it, have we made it clean within as well as protected it from without? For, after all, democracy is not the right of unrestricted conduct, unrestricted voting, unrestricted rights of contract and human relationships, unrestricted rights to every freedom. Nor is democracy a license. It is not the rule of the mob. It is not the unrestricted expression of uneducated, untrained, or irresponsible masses. One who thinks of democracy as equality in all things denies the law of nature.

Men cry for equality until they themselves reach a certain level of acquisition. They ask for a division of wealth and a sharing of production when they themselves are not producing, but deny and cry out against such division and sharing when they themselves are prosperous.

Which is more valuable, your share of the wealth created by the people, or your right to obtain as large a share as your talents and ability and ambition will permit under rules governing all? That is democracy.

We often witness efforts to mislead and to misinform. Like children, our people are told hobgoblin stories in the hope it will influence their votes. *And the pity, it will.* False and impossible promises are made and to our disgrace often accepted at face value. To be misled through prejudice, or poverty, leads but to dictatorship and Fascism. A statement made by one who has an interest, or seeks the accomplishment of an unworthy purpose, should be carefully studied and analyzed and not taken on its face as true. Perhaps that is one of the defects of our education. That is one which the years will im-

prove and maybe cure, but it is a long ways in front of us.

Your part in all of this is vital and large. For in this era when there is a hue and cry for total equality, when there is demand for equal shares, when our democracy is being tested, and when we are arousing and inciting the have-nots against the haves, when the practice of medicine is about to be socialized, what is your duty? We can be lulled into indifference by the promises of those who preach a false Utopia, promises of the millennium; the restoration of the Garden of Eden—that man's long day of rest is at hand.

Your education, therefore, places a responsibility upon you and upon your leadership apart from your practice; because today all governments are more intimately connected with the individual's life than ever before.

In the first place, you must be the depository of the ideals of this institution. Those ideals ought to be well expressed and well understood. And unless the graduates of this institution are imbued with the purposes and ideals and ultimate objects of this institution, then it does, in part, fail. May I tell you what I think are some of its purposes and ideals?

The first is the education of doctors by modern methods with all scientific research, discoveries, exploration in the fields of improved medicine; the second, education of men and women to return to communities for service and not for profit only; third, educate man to become, as it were, the good samaritan who will lead the sick and handicapped to a better way of life. For a modern doctor is not simply a pill roller, a prescriber for the ill. He is at the same time a part of the social life and order of the community in which he lives, for its good health is just as vital to him and the community as it is to the individual whom he serves.

For public health must, I think, in the future be part of a doctor's work. Our people need training, need education, they need instruction in hygiene and sanitation, personal conduct, and in protective measures. Here a doctor should be the first in leadership.

Fourth, to prepare men and women to integrate medicine with social needs. When we speak of social needs we have reference to the economic level of our people, recognizing that many of them are incapable of employing professional services because of their low income. To turn our back upon them and not furnish them adequate services and medical assistance, is to fail in one of our principal obligations to society. Failure at this point will ultimately bring about some kind of socialized medicine. After all, as those needs are adequately supplied and we gradually and slowly climb to a more intelligent and higher economic level the doctor will reap the reward of his social services.

In the second place, you are the promoters of the ideal of modern medicine. This institution, I am sure, is dedicated to the training of doctors in the most modern manner. Its purpose is not simply to send men and women out who can diagnose the simple diseases which can be cured by the medicine cabinet. These ideals embody most of the social conception which I have just spoken of—public health, public welfare, economic needs, universal medical services, that all men shall be guaranteed access to the discoveries which mean prevention or cure of human maladies. I am sure it has this idea of educating our people, of integrating our practice of medicine with our schools, and the public welfare.

I recommend such ideals to you. If you have them not, then this institution has failed in the accomplishment of one of its great objectives and purposes. You go forth to serve mankind, for you must recognize that in modern society, where we have such intricate and complicated economic and social conditions, man does not live to himself alone, as perhaps he has in many of the eras of past history. We not only have a responsibility to ourselves but we have one to our community and to society. We not only have a duty to perform for our family, but we have duties for our neighbor, for our State, and for our Nation. This isn't Communism, nor is it Socialism, but it is a recognition of a new phase of civilization brought about by discoveries, inventions, improvements in transportation and communication. We no longer live across the branch from each other, but we live just as close as the telephone, or radio, an automobile, a train, or an airplane. We no longer live in isolated communities but we live in communities that

are close together, and their physical, economic and political welfare is a concern of all of us and not just those alone who happen to live within their confines.

You are in reality the pioneers of this institution because you are the first class to graduate, pioneers in the new conception and training of doctors, pioneers in the new conception of the practice of medicine, pioneers in the new conception of social needs and responsibilities. Unless you do combine all of these and make them a part and parcel not only of your training here but your practice hereafter, then this instituton is builded upon the sand.

I wish you well. I shall watch as long as I shall be permitted the effect of this institution on the life of our people. I hope, I pray, yes, perhaps I know, it will be great and beneficial. You shall make it that.

THE PREVENTION OF CONDUCTION DEAFNESS

GILBERT E. FISHER, M. D.
Birmingham, Alabama

In 1924 a laboratory was established at Johns Hopkins Hospital, under the direction of Dr. S. J. Crowe, for study of the causes and prevention of deafness. Dr. Crowe's plan of investigation was patterned after that used so successfully in general pathology, i.e., the correlation of impaired function as determined by clinical tests with the location and nature of the causal lesion. Through the courtesy of the Bell Telephone Laboratories, an audiometer was obtained which enabled Dr. Crowe to test a range of tones from 32 to 16,384 double vibrations per second, which was not available in the commercial audiometers. As the number of records increased, and this number exceeded 15,000 records during the first 14 years of the experiment, it became apparent that impaired hearing for high tones was extremely common in children as well as in adults.

Impaired hearing for high tones with good hearing for low tones had always indicated an inner ear or nerve lesion prior to Dr. Crowe's investigation. However, this particular finding was noted so frequently in children, during this investigation, that it led Dr. Crowe to doubt this classic teaching. Doubts were increased by the observation that some of the children regained their hearing for high tones after the removal of enlarged adenoids. This led to a more careful preoperative and postoperative examination of the nasopharynx with the electric nasopharyngoscope, an instrument which is absolutely essential if one is to obtain a clear view of the region of the eustachian tube orifices.

Examination of children with an electric nasopharyngoscope prior to surgical removal of the nasopharyngeal lymphoid tissue, or adenoids so-called, invariably reveals a large mass of this tissue in the nasopharynx which partially or completely obstructs the posterior nares and eustachian tube orifices. During childhood the lymphoid tissue of the pharynx and nasopharynx reacts to infection by increasing in size and spreading, by hypertrophy, to areas of mucous membrane normally free from it. It often happens that even in a very few months after surgical removal of the tonsils and adenoids in children, and occasionally in adults, numerous nodules of lymphoid tissue appear on the lateral and posterior walls of the pharynx. This condition is commonly called granular pharyngitis. It is not due to inadequate or incomplete original operation but to the fact that the lymphoid tissue is an integral part of the nasopharyngeal and pharyngeal mucosa, and it is surgically impossible to remove all tiny islands of it without removing a full thickness of the mucous membrane. In over 75% of the children with high tone loss that failed to clear up after operation, Dr. Crowe found an overgrowth of lymphoid tissue nodules in and around the nasopharyngeal orifice of the eustachian tubes. An electric nasopharyngoscope was used in all cases so that a perfectly clear view could be obtained of the region examined.

The enlarged mass of lymphoid tissue in the nasopharynx preoperatively, and this

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Professor of Otolaryngology and Bronchoscopy, Medical College of Alabama.

recurrent growth of lymphoid tissue postoperatively, partially or completely obstructs the eustachian tubes, causes hypersecretion of mucus, which impairs function and produces chronic irritation in the tubes and middle ears. When this condition is present, normal air pressure within the eustachian tubes and middle ear ceases to exist, and normal drainage of mucus secreted in the middle ear cannot be maintained. This results in the tympanic membrane becoming retracted; myxomatous changes taking place within the tube itself, and consequent loss of normal vibration of the tympanic membrane and an insidious loss of hearing.

The earliest symptom of such an obstruction is impaired hearing for the tones above 10,000 double vibrations. Good hearing in the middle of the scale, from 250 to 3,000 double vibrations, is essential for understanding speech; and until hearing for the middle tones becomes impaired, children with partial tubal obstruction may have no evident difficulty in hearing at school or at home, or, if they do, it is ascribed to inattention. When untreated, the deafness progresses by involving one octave after another toward the lower end of the scale, and becomes evident only when the tones in the speech range are affected. Thus, one can readily see, the primary cause may be insidiously damaging the hearing apparatus for a number of years before it is recognized. The location of the offending tissue makes it practically impossible to remove this hyperplastic lymphoid tissue surgically without further damaging the tubes.

Within the past forty years it has been demonstrated conclusively that lymphoid tissue is readily affected when exposed to the rays of radium or x-ray. Heinlke[1] and Akaiwa and Takeshima[2] have shown how the above mentioned rays affect lymphoid tissue. When lymphoid tissue is first exposed to radiation it undergoes a swelling or enlargement during the first hour. After one hour the nuclei of the cells begin a disintegration which reaches its height in approximately six hours. This is followed by phagocytosis of the chromatin particles of the decomposed nuclei, diminution in the size of the involved tissue, and finally a very marked increase in the proliferation of new connective tissue. The whole process requires approximately three weeks. With the knowledge at hand, that lymphoid tissue is more susceptible to irradiation than the adjacent epithelium, muscle, glandular structures and bone, Dr. Crowe, under the aid and advice of Dr. Curtis F. Burnam, began to treat hypertrophied lymphoid tissue of the nasopharynx with radium. The radiation was applied through an applicator small enough to pass along the floor of the nose into the nasopharynx. With an electric nasopharyngoscope in one side of the nose and the applicator in the other, it is possible to place the applicator under visual control.

With the applicator in place, a two gram minute exposure is given to each side of the nasopharynx, at the orifice of the eustachian tube. This small safe dose of radiation does not destroy or totally remove lymphoid tissue, but does reduce its size and temporarily inhibit its growth. As the lymphoid tissue is reduced in size the patency of the eustachian tube is reestablished and normal function is restored.

Several thousand patients with impaired hearing thus treated by Dr. Crowe have regained normal hearing as conclusively proven by many audiometric studies taken before and after this type of treatment.

This combination of factors proves that the most common type of middle ear deafness in adults begins in childhood between the ages of 5 and 10 years. It progresses so gradually and insidiously that it may not become evident until it is too late to correct the primary trouble and restore hearing. Dr. Crowe feels that if school children in the primary grades were examined with an electric nasopharyngoscope at least once a year, and those with hyperplastic lymphoid tissue in and around the orifice of the eustachian tubes were treated with radiation as often as necessary to insure normal functioning of the tubes, the number of deaf adults in the next generation could be reduced fifty per cent.

During the past five years it has been my privilege to treat, in the above described manner with radium, over 1,200 children and adults whose nasopharynx exhibited hyperplastic lymphoid tissue as seen with the aid of the electric nasopharyngoscope.

1. Heinlke, H.; Mitt. A. D.; and Grenzgeb: d. Med. u. Chir., 14:21, 1905.

2. Akaiwa, H., and Takeshima, M.: The Reaction of Lymphoid Tissue to Roentgen Radiation, Am. J. Roentgenol. 24: 42-46, 1930.

Many of the children have experienced vast improvement in their hearing, and innumerable adults have ceased to experience commonly repeated attacks of acute nasopharyngitis.

It is our sincere hope and plan that within the next two months we will have established in the otolaryngology clinic of the Medical College of Alabama apparatus and equipment to begin a scientific investigation similar to the one Dr. Crowe has carried out at Johns Hopkins Hospital. We realize, of course, that the experiment will necessarily have to be confined to a relatively small group of school children in Birmingham, because of the inadequacy of the size of our staff. However, it is our hope for the future that such an investigation can be carried out on a state-wide basis with the aid and support of you gentlemen, the doctors of the State of Alabama, and that all children may routinely be examined with the electric nasopharyngoscope and audiometer. I feel, as does Dr. Crowe, that if this could be carried out regularly in the school children of the State of Alabama, we would be correcting an insidious process which robs 8% of our citizens of their hearing in adult life, and would be performing the greatest possible public health service.

In conclusion, I wish to make it perfectly clear that all credit for this original work belongs solely to Dr. Crowe, Professor of Otology, at Johns Hopkins Hospital. It has been my great pleasure merely to carry out his revolutionizing observations and teachings. The medical profession has Dr. Crowe to thank sincerely for bringing it out of the "Dark Ages" to its present knowledge of the prevention of conduction deafness.

IMPORTANCE OF THE ANORECTAL REGION

W. J. ROSSER, M. D.
Birmingham, Alabama

I prepared this little paper with the idea in mind of stressing or emphasizing the importance of the anorectal region. If the common proctologic conditions are to be recognized and properly treated, the men doing general practice and those doing a lot of general examinations will be the ones responsible for initiating this treatment to a large degree. For I am convinced that some sort of rectal examination should be done as a part of every physical examination. If one is too busy, indifferent or, shall I say, too lazy to so much as put his finger in a man's rectum during the process of a physical examination, diseased conditions of these parts will continue to go undiagnosed.

It has been stated that one out of every seven people coming to a doctor for relief has a complaint which could be relieved or completely cured by treatment of some condition found at a thorough proctologic examination. Many people call on their physician for pain, swelling and discharge localized in the rectal region. Many others, however, have symptoms in more remote parts of the body, as headache, backache, sciatica, anemia, and many others focus of which may lie in the lower bowel. In my opinion it is as important to examine the rectum for a focus of infection as it is the throat or any other part of the body.

Let us stop for a moment and consider some of the important anatomic aspects of this region. The upper part of the rectum is not supplied with sensory nerve fibers but the anus and anal canal are liberally supplied. Thus, diseases of the rectum are usually painless, but no region of the body is more sensitive to pain than the anal canal and peri-anal region.

The venous drainage of these parts deserves some attention. The superior hemorrhoidal vein returns the blood from the rectum to the portal circulation, while the middle and inferior hemorrhoidal veins return the blood by way of the internal iliac to the general circulation through the vena cava.

The lymphatic vessels of the mucous membrane of the rectum proper communicate by way of the postrectal glands with the mesentery of the sigmoid. The lymphatics from the skin of the anus and circum-anal region communicate with inguinal glands. Thus, early involvement of the in-

Read before the Southwestern Division of the Association, Greenville, July 18, 1946.

guinal glands would indicate malignant or infectious disease of the anal region, while malignant and infectious disease of the rectum proper would involve the presacral, lumbar and mesenteric glands.

PAIN

Among the many symptoms for which one seeks the physician's aid, the most frequent in this region, as elsewhere, is pain. As mentioned above, any severe pain in this region will be in and around the anal canal or anal orifice. However, there may be pain higher up if the lesion or growth is extensive or large enough to involve surrounding structures. We may have the sharp, shooting, or burning pain of an anal fissure or ulcer. This is usually worse during and immediately following bowel movement. This sometimes becomes so excruciating as to make life unbearable. The size of the lesion is usually out of all proportion to the pain. Then we may have the throbbing, more or less constant pain of rectal abscess or the dull aching pain, intermittent or constant, of hemorrhoids, polyps, fistula, or malignancy. Referred pain to other parts of the body, as the sacrum, bladder, vagina, penis, or down the sciatic nerve or inguinal region may cause no local pain at all. It should be said here again that many disease conditions of the rectal cavity itself may progress to a stage almost unbelievable without causing any local pain but may cause the above referred symptoms.

In this connection I would like to report a case which may illustrate, if poorly, this question of referred pain. Mrs. H. C. S., aged 31, came into my office 6-5-45 complaining of pain and aching in the left hip and down the left leg for a year or more, worse since an appendectomy in October 1944. On closer questioning she admitted some pain in the rectum and occasional bleeding when constipated. On inserting the finger in the anal canal, the patient complained of some tenderness on the left side. There was a slight prominence at the end of the examining finger on this side. Anoscopic examination showed a moderately inflamed crypt just outside this point. Proctoscopic examination was negative above this point. I did not suspect the true condition and put her on conservative treatment for one week at which time she returned with no improvement. She was sent to the hospital and under anesthesia the small mass could be felt better, and was about 1½" above the crypt mentioned. A probe could not be inserted through the crypt into the mass. However, I decided the mass should be opened and investigated. This was done between Allis clamps through the crypt into the mass, and about an ounce of pus was evacuated. No opening could be found anywhere in the abscess wall. It was opened to the outside for drainage. She made an uneventful recovery with relief of her symptoms.

BLEEDING

Almost equal to pain in causing one to seek the advice of a doctor is bleeding. This symptom, above all others, should suggest a thorough proctologic examination. Bleeding is seen more often in adults than in children. It may be slight or profuse and usually occurs on bowel movement but may occur at other times. There may be merely a staining of the feces or toilet tissue. It may be clotted or liquid and sometimes mixed with mucus or pus. Of course, bright red blood would indicate local bleeding from the anal canal, and the darker the blood usually the higher in the bowel is its source. Rectal bleeding may be caused by internal hemorrhoids, fissure in ano, polyps, ulcerations, malignancy, different forms of colitis, stricture, fecal impactions and others. It should never be taken for granted that rectal bleeding is diagnostic of hemorrhoids or any other disease, but a thorough proctologic examination should be done to determine the cause.

CONSTIPATION

Two or more of any of the symptoms I am discussing may occur at the same time in the same patient, but constipation probably occurs more often singly or in connection with some other symptom than any of the others. It is of such common occurrence that in making a comparison, in his recent book, between Europeans and Americans, Hirschman states that we have become a constipated nation. Most people, including doctors, do not seem to find the time to answer the urge of nature, nor to eat the proper diet and get the proper exercise; and the radio medicine man finds another victim. You have only to listen to your radio, look at the ads in your paper, or look on the

shelves of the average drug store to learn how popular laxatives are in this country. A combination of the above is, in my opinion, the greatest causative influence in producing constipation.

Constipation should be differentiated from obstipation. The latter has a purely organic or mechanical origin, and the obstructing lesion or abnormality must be corrected surgically in order to relieve adhesive or constricting bands, strictures or pressure from tumors or growths outside the intestinal tract. Lesions in the anal canal may cause apparent constipation due to sphincter spasm.

Constipation may contribute directly or indirectly to such rectal conditions as fissure in ano, hemorrhoids, cryptitis, abscess and fistula. And these conditions may in turn aggravate the constipation, and we have a vicious circle. Any patient complaining of either longstanding constipation or recent change in bowel habits deserves a complete study of his intestinal tract. By observing this rule closely many early malignancies and other disease conditions of the lower bowel may be diagnosed that would otherwise be missed. Almost as important is the fact that the sympathetic and intelligent care of these cases of constipation by the physician will eliminate a lot of promiscuous and unnecessary, as well as harmful, taking of laxatives and purgatives.

ITCHING

It is not my purpose to go into any lengthy discussion of pruritis ani because volumes have been written on it. Itching around the anal outlet, perineum and vulva, and scrotum is a very common symptom which may accompany almost any of the diseases of this region. It may range all the way from an occasional feeling of uneasiness or irritation following stools to the most intense, annoying and even terrifying conditions found in pruritis ani. It may be only part of a general constitutional disease, such as diabetes or allergy, and if this condition is cleared up, the itching disappears. I believe the most important thing for us to remember is that a great majority of these cases are due to some local disease condition and that it has been demonstrated time and again that when these conditions are cleared up the itching ceases.

PROTRUSIONS

A large majority of protrusions of which the patient comes in complaining are due to hemorrhoids, but a careful examination should be done and history taken to rule out or confirm such conditions as prolapse of the rectum, hypertrophied papillae, polyp or cancer. It is important to know whether the protrusion occurs at time of bowel movement only, whether it remains outside, whether it comes out on walking or sitting down, and whether it can be replaced. It should be ascertained if any bleeding occurs or if it is painful.

DISCHARGE

Rectal discharge, as bleeding, should always suggest anoscopic and proctoscopic examination. Almost all inflammatory processes in the anal canal, rectum and colon are accompanied by some kind of discharge, purulent or mucopurulent, either of which may contain blood. A purulent discharge is usually indicative of rectal abscess or fistula, or malignancy, while a mucous discharge is usually indicative of trouble higher up in the colon. Many patients complaining of itching may be found to have rectal discharge or moisture of these parts and it is always well to bear in mind the possibility of infected crypts, so-called "blind fistula" or ulcerated hemorrhoids in these cases.

DIARRHEA

Chronic diarrhea, or diarrhea alternating with constipation, is so frequently a symptom of malignancy or colitis that these diseases should be eliminated by examination before any treatment is attempted. Any persistent diarrhea in an apparently healthy person is suggestive of malignancy. A diarrhea may be apparent only, and frequent passage of normal stools may be due to weakened sphincter muscles or beginning tabes dorsalis or injury to the muscles. In this connection I would like to report another case that recently came under my observation.

Something like a year ago I was asked to see a man about forty-four years of age who had been admitted to the hospital complaining of being unable to control his bowel movements and of soiling his clothing and of pain in the abdomen. Digital examination revealed almost complete loss of sphinc-

ter tone and nothing else. On further questioning he said he had been treated for syphilis in the Army in 1917-18 and for some years following his discharge when he was told he was cured. He continued having yearly blood tests for several years, all of which were negative. A spinal puncture was advised and done and a typical tabetic curve was obtained. His physician told me recently that antileutic treatment had improved this condition. However, he will never regain good sphincter control.

Symptoms remote from the rectum, such as shooting pains down the leg, low backache, crampy, painful menstruation and urinary disturbances will often be found to have their origin in the rectum. Loss of appetite, weight, general lassitude, headache, nausea, vertigo, or unexplained fever are frequently symptoms of improper functioning of the lower bowel. Unexplained anemia is frequently caused by loss of blood from internal hemorrhoids, polyps or malignancy.

If this paper stimulates the making of a few more rectal examinations, I feel it will not have been in vain, for it is becoming more and more recognized that no physical examination is complete without a proctoscopic examination.

USE OF THE VOORHEES BAG TO INDUCE LABOR AND TO FACILITATE DELIVERY IN PROLONGED LABOR

REPORT OF 100 CASES

T. M. BOULWARE, M. D., F. A. C. S.
And
C. D. HOWE, M. D.
Birmingham, Alabama

Does the hydrostatic bag still have a place in present day obstetric practice? Most obstetricians so queried would probably give a negative opinion. This negative opinion is also quite likely shared by most large maternity centers and teaching institutions. A few obstetricians, including ourselves, are of the opinion that bags may sometimes be used to advantage.

To those at all familiar with the use of bags it must be quite apparent that many unfavorable results reported in literature are due to improper selection of cases, improper methods, and unfair assessment of blame for poor results upon bagging itself rather than upon the complication which prompted operative interference.

The three more or less primary indications for bagging are (1) control of hemorrhage from low lying placenta, (2) operative induction of labor, and (3) as a means of expediting delivery in cases of prolonged first stage.

This paper reports our experiences and results in 100 consecutive cases of bagging during the past six years and five months.

Bags were used for induction in 38 cases, many of them preeclamptics. Severe preeclampsia and actual convulsive eclampsia will usually be considered preventable. Important in this prevention is induction of labor at the right moment. Cases of preeclampsia approaching the severe preeclamptic or eclamptic status should be terminated just as soon as the cervix is "ripe" enough for a safe induction. Such cases received previously the usual diet, rest, elimination, and glucose. Babies may die in utero and maternal kidney tissues may be permanently damaged by needless waiting. If indications for termination are definite and the cervix is unsuited for induction, abdominal delivery is justified in some few cases. Convulsive eclamptics who fail to go into spontaneous labor should probably have operative induction after a "cooling off" period renders induction safe. No real eclamptic should leave the hospital undelivered. Other methods of induction are simple rupture of membranes, bougies, and packing. With presenting part fairly well engaged and/or if the cervix is def-

Read before the Alabama Association of Obstetricians and Gynecologists, Birmingham, April 16, 1946.

From the Norwood Clinic and Hospital.

initely less than 2 fingers dilated, simple rupture of membranes will be done. If the cervix is nearly 2 fingers dilated and presenting part is floating, we would elect the bag as safer, more positive, and more rapid in its action. Neither bougies nor packing will be attempted by us. This means, of course, that many cases for induction in which we will use a bag are cases that would respond well to any type of operative induction. Please note that this fact is freely and frankly admitted.

Cardiovascular-renal disease may sometimes be an indication for pregnancy termination but such decisions will probably be made long before any method of induction from below is practical.

Postmaturity of fetus is a rather doubtful indication for induction. Do some patients go overtime? Surely, some babies become too large whether postmature or not. One note of caution is the avoidance of operative induction in cases of possible cephalopelvic disproportion. Insertion of foreign bodies into such a uterus will commit us to a vaginal delivery. The baby may be too large or too premature. Inductions of convenience have no real justification.

Exactly what constitutes undue prolongation of the first stage of labor and what indications justify operative intervention are both largely matters of personal opinion. We believe that labor of over 14 hours duration with no evident cervical progress for three hours is surely an indication for a rest period and intravenous fluids to prevent maternal exhaustion. Following such a rest period, if resumption of pains for several hours still results in no cervical change, some type of operative interference is indicated by any reasonable standards. Conservatism in obstetrics usually pays dividends but such a policy must have reasonable limitations.

There are many different causes of first stage delay. "Cervical dystocia" is a much abused general term often incorrectly used. Relative cervical dystocia may be caused by such malpresentations as transverse or such malpositions as occiput posterior, breech, face, and brow. True cervical dystocia should be used with specific reference to primary or inherent cervical faults or defects.

In relative cervical dystocia we have to deal with a factor which may sometimes be corrected, thereby facilitating cervical progress. Such correction may not always be possible but it must be quite evident that vaginal delivery may not be safely attempted until cervical dilatation is complete or unless the cervix is incised. This frequently means resort to some means of facilitating cervical dilatation unless the malposition or malpresentation corrects itself or is corrected. Such artificial means may be a bag, a Braxton Hicks version, or cervical incisions. Misguided attempts at so-called "manual dilatation" are contraindicated.

True or inherent cervical dystocia may be due to cicatricial residuals from surgery or cautery. If this is encountered, abdominal section may be indicated. Simple atresia of the cervix may result in one which effaces to paper thinness but fails to dilate. These rare cases result from low grade inflammatory lesions, and such cervices may eventually be dilated with two fingers, like wet blotting paper. This is not to be confused with manual dilatation. A third type of true cervical dystocia may be encountered in elderly primiparae. Here connective tissue elements may overshadow more elastic muscle tissue fibers. These cases often constitute major delivery problems, especially when associated with breech and occiput posterior so frequently encountered in this group of patients. Abdominal section will be correctly resorted to in some cases of this type.

Many cases of relative cervical dystocia are suitable for bagging. All of our cases of prolonged first stage received adequate sedation and fluids before resort to bagging was made. Presence of the bag stimulates uterine contractions by acting as a foreign body, favors cervical retraction, and also acts as a mechanical dilator under the effects of uterine contractions. Braxton Hicks version will also usually suffice but carries a considerably higher fetal mortality. Bags and prophylactic version will both secure cervical dilatation if delay is due to a malposition. Neither should be used if delay results from fibrous or cicatricial tissue in the cervix.

Some cases of transverse presentation are suitable for bagging, especially if the patient is a multipara. All patients with trans-

verse presentation at term should arouse our suspicions and stimulate our further investigation regarding the real cause. X-ray, x-ray pelvimetry, and a complete re-evaluation of the entire case is indicated before there is any operative intervention from below. During labor, transverse presentations will correct themselves into vertex or breech, will rupture membranes suddenly with probable resulting cord prolapse, or may eventually result in shoulder presentation, contraction ring, and perhaps uterine rupture before or during attempted delivery from below. These undesirable complications may be avoided by early section, bagging, or prophylactic version. Choice of these three operative procedures will depend upon the individual case.

Simple uncomplicated cord prolapse with the baby still in apparently good condition may sometimes be corrected by manual or instrumental replacement of the cord with bagging to keep the cord in position. Replacing a cord sounds simple but may actually be most difficult or even impossible. No method of management gives uniformly good results, immediate cesarean section included.

Instances of primary uterine inertia are rare. Sedation, rather than stimulation, will be indicated. Secondary inertia usually means a uterus that has become exhausted trying to overcome some factor of dystocia, such as malpresentation, malposition, or cephalopelvic disproportion. Sedation and fluids first, then operative intervention, will sometimes be needed here. Cervical dilatation and subsequent delivery may be expedited by bagging, by prophylactic version, by simple rupture of membranes, or by cervical incisions.

We do not favor use of bags in placenta previa. If the previa is a centralis, we consider that a definite indication for abdominal section exists. If our previa is marginal, simple rupture of the membranes and perhaps application of Willett forceps will usually suffice. If the previa is a lateralis, rupture of membranes and/or bagging or Braxton Hicks version will sometimes be resorted to if cervical effacement and dilatation permit. Bagging will probably be safer for the baby and Braxton Hicks safer for the mother under such circumstances. If our previa patient is bleeding freely through an unripe and poorly effaced cervix, abdominal section will be done by us regardless of the type of previa or the status of the baby. Previa means implantation in the lower uterine segment and upper cervix. This in turn means a lower segment and cervix more friable and more susceptible to trauma from any operative procedure approaching forceful cervical dilatation. Hemorrhage from laceration, superimposed upon hemorrhage from previa, may mean the difference between maternal life and death. Bags with heavy weights and Braxton Hicks version with excessive traction are both contraindicated in previa. Either may be used to control hemorrhage but neither should be used as a means of violent cervical dilatation.

We do not use bags for abruptio placentae. Adequate blood replacement, followed by simple rupture of membranes or by cesarean section, will probably be our choice here.

We employ the following routine for bagging:

1. Preliminary sedation.
2. The usual cleansing enema.
3. Patient is in delivery room and the usual preparations for delivery are carried out. This will include catheterization.
4. The selected bag, usually a No. 6 Voorhees, is tightly rolled and grasped with sponge forceps. Care is taken to allow ½ inch of the rolled bag to project beyond the end of the sponge forceps.
5. Exposure of the cervix with speculum or tenaculum is seldom necessary if the cervix is truly suitable for bagging.
6. The bag of waters is gently loosened from the endocervix and lower uterine segment and the bag is carefully inserted to one side by guiding it with two vaginal fingers. Great care is taken *not* to rupture the membranes.
7. The bag is then filled with the correct amount of sterile water and the tube end of the bag clamped with two hemostats. Attached weights are optional but should not exceed 1½ pounds.
8. Insertion of a small bag, with later substitution by a larger one, is to be avoided. Cord prolapse is a likely complication here.

Among the mentioned disadvantages and dangers of bagging are cord prolapse and compound presentations. If the bag of waters is not ruptured at time of bag insertion,

cord prolapse cannot occur prior to bag expulsion. If a No. 6 Voorhees bag is used, delivery may at once follow bag expulsion so that cord prolapse should not mean a fetal loss. We lost no babies from this cause. Use of large bags does dislodge the presenting part upward and this could possibly result in a later compound presentation. Inasmuch as most of our cases were delivered by immediate version and extraction, dislodging the presenting part was not a cause of major concern to us.

Infection has also been mentioned as a possible danger. It cannot be denied that intrauterine insertion of foreign bodies carries some theoretical hazard. Most of our cases were extra-ovular. Our recorded puerperal morbidity incidence does not suggest that infection is a frequent complication of bagging. There were no failures in our series.

There are, of course, other means for the induction of labor. If time permits, medical induction is worthy of trial before any operative attempt is resorted to. Although we do not subscribe to fractional pitocin, we have no outspoken criticism of the method. Simple rupture of the membranes is favored by many and is widely used. We use it frequently ourselves. Bougies and rectal tubes are uncertain in action and carry an appreciable risk of disturbing a low lying placenta. Packing is suitable only for patients with poor cervical effacement and even then its use is rather questionable. We have mentioned the occasional case for abdominal section.

Various other means are available to expedite a prolonged first stage of labor. We have mentioned that adequate rest period and glucose should probably precede any intervention. A most logical measure is a Braxton Hicks done as a prophylactic version. This procedure gives excellent results for some but in our opinion cannot avoid a higher fetal mortality. Manual dilatation is no longer attempted. Cervical incisions and vaginal section do not appeal to many of us.

GENERAL RULES

1. The cervix should be about 2 fingers dilated and well effaced.
2. Membranes should be intact.
3. Anesthesia is seldom necessary if the cervix is really suitable.
4. A number 6 Voorhees bag is used.
5. Check the fetal heart tones after bag insertion.
6. Attached weights should not be excessive.
7. Subsequent examinations are seldom necessary.
8. Patient must be in delivery room with anesthetist ready when bag expulsion becomes imminent.
9. Delivery should follow bag expulsion.
10. The cervix is carefully inspected.
11. Attendant should be capable of satisfactory version.

TO INDUCE LABOR

	Cases	*Maternal*	*Fetal*
Preeclampsia	23	0	2
"Cooled eclampsia"	2	0	*1
Cardiovascular-renal disease	2	0	0
Postmaturity of fetus	3	0	0
Transverse presentation	1	0	0
Others	7	0	0
Total	38	0	3

*Non-viable or known dead in utero

TO FACILITATE LABOR

	Cases	*Maternal*	*Fetal*
Prolonged first stage: persistent posterior, face, breech, transverse, cervix	50	0	0
Cord prolapse	3	0	0
Placenta previa	3	0	*1
Eclampsia	1	0	0
Transverse presentation	3	0	*1
Uterine inertia	1	0	0
Other	1	0	*1
Total	62	0	3

*Non-viable or known dead in utero

HOURS IN LABOR WHEN BAG USED TO FACILITATE LABOR

Less than 6 hours	4
7 to 12 hours	17
13 to 18 hours	22
19 to 24 hours	13
Over 24 hours	6

TIME BETWEEN BAG INSERTION AND DELIVERY ALL CASES

Less than 2 hours	33
2 to 4 hours	49
5 to 7 hours	13
Over 7 hours	5

CERVICAL DILATATION WHEN BAG INSERTED

2 to 2½ fingers	44
3 to 3½ fingers	54
4 fingers	2

METHOD OF DELIVERY

Internal podalic version	86
Low forceps	7
Breech extraction	5
Spontaneous vertex (One set of twins)	3

ANALYSIS OF STILLBIRTHS

1. Lateral placenta previa. Non-viable fetus.
2. Labor 72 hours and membranes ruptured 40 hours prior to hospital admission. Dead fetus. Shoulder presentation, contraction ring, shock, and rather obvious infection. Cervical laceration. Puerperal morbidity.
3. No prenatal care. Fulminating convulsive toxemia. Almost died of pulmonary edema. Baby known dead in utero. Bag induction 5 days later. Macerated fetus.
4. Non-viable 5 months fetus. Breech. Premature rupture of bag of waters followed by prolonged uterine efforts to dilate. Contraction ring, consultation, bag, macerated fetus.
5. Consultation case. Small bag inserted by physician to induce labor for severe preeclampsia. Status of baby uncertain then. Larger bag later. Low forceps delivery. Macerated fetus. Small laceration of cervix and poor healing of episiotomy. Puerperal morbidity.
6. Postmature breech and preeclampsia. Baby lost during difficult breech extraction.

COMMENTS ON OUR RESULTS

1. There were no maternal deaths and six stillbirths in our 100 cases. Two of the stillbirths were definitely non-viable, two were known dead in utero before bag insertion, one was probably dead in utero, and one baby was lost during a difficult breech extraction following bag expulsion. Blame hardly rests with the bag in these cases of fetal loss.

2. The one case of frank puerperal sepsis was the patient in labor 72 hours prior to hospital admission. This infection cannot honestly be assessed to bagging because sepsis was obvious at the time of bagging. Porro section with a dead baby did not seem indicated and probably would have been fatal. There were five other minor morbidities that fell within the standards of 100.4° on two days other than the delivery day.

3. Ten per cent of our cases required one or more sutures in the cervix. This incidence is indeed high. Some of these lacerations occurred with bag expulsion and others with the following version and extraction. Eight of the ten were in the "expedite prolonged labor" group and we maintain that here the incidence of cervical repair would have been no lower if resort to Braxton Hicks or cervical incisions had been made instead of bagging.

4. It has not been the purpose of this paper to discuss the indications for operative induction of labor or for interference with a labor in progress. Regardless of any conservative policy or conviction, both of the above procedures are occasionally indicated.

THREE COMMON MISTAKES

1. Cervix not truly suitable for bagging.
2. Too small a bag is used.
3. Delay in delivery after bag expulsion.

CONCLUSIONS

Simple rupture of the membranes is without doubt the method of choice for operative induction of labor in most cases. There are a few cases, such as those with floating vertex or importance of time element, in which bag induction may be considered. Certain conditions must be fulfilled before bags are so used.

We find little place for bagging in placenta previa and no place whatever in abruptio placenta.

Selected cases of undue prolongation of the first stage of labor will constitute our most frequent indication for bagging. Here again, certain conditions should be fulfilled. For this indication, it is only fair to compare bagging with prophylactic Braxton Hicks version, cervical incisions or vaginal hysterotomy, or some type of abdominal section. Any analysis of results in this group should include careful evaluation of the complication which prompted operative intervention.

Results in our last 100 cases of bagging have failed to confirm some of the mentioned dangers. In presenting this definitely controversial subject we have neither attempted to make a case for bagging nor have we suggested that anyone resort to it. Our statistics are reported for comparison with other series reported in the literature. Based upon those statistics, we believe that bagging does have a restricted place in present day obstetrics.

2501 N. 16th Ave.

Thiouracil—In the medical treatment of hyperthyroidism the drug has many advantages because of its lasting effect. In hyperthyroidism of adolescence and of pregnancy where it is desirable to postpone surgery the drug has been successfully employed. In recurrent goiter, after two or more operations; in severe thyrotoxic heart disease or other systemic debility where surgery is contraindicated or when surgery is refused, thiouracil offers invaluable aid. Finally, its use as a therapeutic test may clear up a questionable diagnosis, especially in those instances in which the patient shows evidence of hyperthyroidism with normal basal metabolic rate.—*Sexton, South. M. J., Nov.* '46.

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CLINICOPATHOLOGICAL CONFERENCES

Through the cooperation of Dean Kracke and the faculty of the Medical College of Alabama, Clinicopathological Conferences become a regular feature of the Journal, beginning with this number. The first, to be found on succeeding pages, conducted by Dr. James S. McLester, Professor of Medicine, and Dr. Roger D. Baker, Professor of Pathology, will be reviewed with interest by members of the profession throughout Alabama, who will also look forward to each month's release.

The editorial staff of the Journal is indebted to Dean Kracke and his faculty for a contribution of exceedingly great value to the Association's official publication.

FIRST ANNUAL COMMENCEMENT MEDICAL COLLEGE OF ALABAMA

Twenty one graduates of the Medical College of Alabama received their degrees as Doctors of Medicine at the first annual commencement of the College held in Birmingham on October 25—the first to be awarded in the State since 1920. Those having the distinction of being in this first graduating class were: Homer Wilson Allgood, Jr., Fairfield; Palmer Henderson Bell, Birmingham; Robert Maurice Bryan, Elba; James Macon Burnett, Birmingham; Donald Hubert Crook, Jack; Carl Frederick Dietz, Birmingham; Walter Clayton Folsom, Wilmer; Marvin Gilbert, Mobile; David Mitchell Hall, Birmingham; Virginia Dare Hamilton, Winder, Ga.; William Frank Hawkins, Tuscaloosa; William Henry Kessler, Birmingham; William Bowen McDonald, Birmingham; Harold Reese Pepper, Lanett, Malcolm Gray Pierson, Tuscaloosa; Maxwell Gideon Potter, Tuscaloosa; Hugh B. Praytor, Jr., Trussville; John Andrew Ray, Montgomery; Edwin Glenn Waldrop, Hueytown; Homer Paul Wiley, Mariana, Ark., and Christian Wingard, Wetumpka.

The Commencement Address was delivered by Governor Chauncey Sparks, and the degrees were conferred by the President of the University, Dr. Raymond Paty.

MASSIVE GASTROINTESTINAL HEMORRHAGE

Eads[1] has recently published his study of massive gastrointestinal hemorrhage. He tells us that "severe and rapid hemorrhage . . . constitutes a medical emergency. Proper treatment must be carried out promptly to prevent loss of life and to prevent a long and serious debility from the hemorrhage. Ill advised or poorly managed treatment too often results in a high mortality rate, which can be avoided with proper management. In recent years the mortality and morbidity from massive gastrointestinal hemorrhages have steadily declined, which is a tribute to the recognition of certain principles in the management of such cases which have developed over the past two decades. It is generally acknowledged, except in a few instances, that medical management is the type of treatment offering the best results in severe bleeding from the gastrointestinal tract. Surgical intervention in the presence of active and massive bleeding is fraught with hazards which few experienced surgeons care to risk. Mortality due to surgical intervention is constantly higher than the mortality rate experienced in medical management."

During the past three and one-half years Eads has observed 129 patients in whom there was sudden massive bleeding, either

1. Eads, John T.: Massive Gastrointestinal Hemorrhage, J. A. M. A. 131: 891 (July 13) 1946.

by mouth, by bowel or in combination. The mortality rate was 2.3 per cent, surely a most creditable figure. In 104 of the patients in Eads' series peptic ulcer was the cause of the hemorrhage. In 8 the blood loss was due to varicosities. Cancer of the stomach, gastritis and tumor of the small intestine had the same incidence, each being found twice. Regional ileitis and blood dyscrasias occurred only once and no cause for the bleeding could be found in nine cases.

The Philadelphia observer goes on to give an excellent outline of treatment which, for reasons of space, can be mentioned only in part here. His recommendations include "absolute rest in bed with shock blocks if necessary and with external heat." Sufficient morphine by hypodermic, or some barbiturate administered parenterally, to insure complete relaxation and freedom from restlessness and anxiety. The emergency blood counts, blood typing and crossmatching should be done as quickly as possible so that blood may be given immediately if needed. Eads prefers transfusions of 500 cc. of whole citrated blood given intravenously by slow drip. "There should be no hesitancy in giving repeated blood transfusions if the indications are present and the blood is given slowly."

"Unless the patient is actively nauseated and vomiting, six to eight equally spaced feedings of 2 ounces of gelatin are given for the first twenty-four hours. If vomiting is present, food had better be withheld but as a rule gelatin is well tolerated. Fluids may be given parenterally if vomiting persists. After twenty-four hours additional food may be given every two hours to replace some of the gelatin feedings or to supplement them; such additional foods are thoroughly cooked cereals, custards, junket, soft cooked egg, stewed skinless fruits, puddings, small amounts of milk, powdered milk and cream."

"The bowels should be left alone as a rule until the bleeding has ceased."

In two of his concluding paragraphs the Jefferson investigator informs us that "massive hemorrhage from the gastrointestinal tract is serious and should never be considered lightly. It requires emergency treatment. Hospitalization is advisable when possible, despite the hazard of moving the patient. With prompt and efficient treatment the mortality rate can be held within a remarkably low figure. Surgical intervention in the presence of massive hemorrhage is not indicated unless there is positive knowledge as to the source of bleeding, the patient is responding poorly to medical management and a fatal outcome appears likely. Fortunately, first hemorrhages with a fatal outcome are relatively rare." And "argument as to the relative merit of feeding or starving the patient in the acute stage of gastrointestinal hemorrhage may never be settled. Mortality reports in recent years favor the feeding theory. Feeding, however, may not be the entire story behind the improvement in these series, but the general, more efficient, additional treatment may play a part as well. No dogmatic rule should be followed, but the needs of the individual patient must be considered."

Few eventualities are more terrifying to the patient and his family and more disconcerting to the physician than a large or persistent hemorrhage from the gastrointestinal tract. And such a hemorrhage is a disaster with which any practitioner, medical or surgical, is apt to be confronted at any time and upon very short notice indeed. How and what the doctor does in such an emergency may well give a true picture of whatever knowledge, judgment and assurance that he possesses.

While treatment of this disturbing and dangerous condition may never become standardized, it is good to know that progress is being made and that both mortality and morbidity have declined sharply within the last twenty years. And it is especially pleasing to be told by an observer of Eads' experience that, in general, conservative treatment is to be preferred instead of surgical intervention.

The Physician's Responsibility—The ten point program of the American Medical Association for the improvement and better distribution of medical care calls for the active support of every doctor in the United States. The leaders of our profession feel very definitely that the indifference of the rank and file of physicians to the things which go to make up our community life is largely responsible for the fact that the guiding and planning of medical care is being taken out of the hands of the profession and is being turned over to social workers, to interested laymen and to politicians.—*Rawls, Virginia M. Monthly, Nov.* '46.

MEDICAL COLLEGE OF ALABAMA

CLINICOPATHOLOGICAL CONFERENCE

Conducted by

James S. McLester, M. D.
Professor of Medicine
And
Roger D. Baker, M. D.
Professor of Pathology

Clinical abstract read by the resident physician:

This 68 year old white male had been admitted to the hospital on three occasions.

The first admission was on January 11, 1944. The chief complaint was dyspnea of four to five weeks duration. He had had dyspnea a month prior to admission and had had a "spell" every two or three days since then. Three days prior to admission he noted a cough productive of red-tinged sputum. He also noted pedal edema. The blood pressure was 202 systolic and 130 diastolic. The heart was enlarged to the left. A diastolic murmur was heard over the apex and base, transmitted upward and to the right. There were coarse, moist rales on inspiration and expiration. The Kline was negative. The urine was normal. The hemoglobin was 91%. White blood cells numbered 14,850. Differential count showed 8 lymphocytes, 81 neutrophils, 7 eosinophils, 2 basophils, and 2 stab forms. He was treated with digitalis and improved rapidly. His course was afebrile and he was discharged on January 22, 1944.

The second admission was on December 15, 1945. The chief complaint was pain over the precordium for several hours. This was aching, continuous and non-radiating and was made worse by walking. He became nauseated, and vomited once prior to admission and once after admission. He also told of a severe headache and of cramping pains in the calves of his legs, both symptoms having bothered him for some time. For a day before admission he had noted difficulty in forming his words when speaking. A review of systems revealed poor vision and a non-productive cough of three months duration. A past history revealed the usual childhood diseases, typhoid when he was a young man, and smallpox in 1914. There were two questionable attacks of malaria many years ago. A family history was non-contributory.

Examination showed the blood pressure in the right arm to be 235 systolic and 140 diastolic, and in the left arm to be 240 systolic and 142 diastolic. The eyegrounds had tortuous vessels but no choked disks. Teeth were absent. The point of maximum intensity of the heart beat was one inch to the left of the mid-clavicular line. A loud, clear, high-pitched, systolic murmur was noted over the entire precordium. No friction rub was noted. The remainder of the examination was negative. The blood count and urine were within normal limits. A lumbar puncture revealed clear fluid with a normal pressure. The spinal fluid showed two white cells per cu. mm., all lymphocytes. The total protein was 32 mg.%. The globulin was negative. The gold curve was 0122210000. He was given magnesium sulfate intravenously and intramuscularly and also sedatives, vitamins, and laxatives, and steadily improved. He remained afebrile and had a blood pressure of 180 systolic and 120 diastolic at the time of discharge on December 27, 1945.

The third admission was on May 6, 1946. No history was obtainable from the patient, as he was drowsy, disoriented, and seemingly semicomatose. The blood pressure was 210 systolic and 98 diastolic, pulse 70 beats per minute, respirations 20 per minute, and temperature 99°. The breathing was deep but regular. The pupils were equal and responded to light. The eyegrounds showed "silver wire" vessels and arteriovenous "nicking." The tongue was red. There seemed to be some stiffness of the neck. There was slight decrease in resonance at the apex of the right lung and in the right lower lobe. The breath sounds were distant everywhere. The point of maximum impulse of the heart was between the mid-clavicular and the anterior axillary line. Occasional extrasystoles were present. No definite murmurs were noted. The remainder of the examination was negative except for an enlarged, soft prostate. No abnormal reflexes were found.

The red cells numbered 6,410,000 per cu. mm. and the white cells 14,150. The hemoglobin was 106%. Differential showed 10 lymphocytes, 6 monocytes, 82 segmenters, and 2 basophils. Blood sugar was 106 mg.%. The non-protein nitrogen was 50 mg.%. The Kahn was negative. The urine contained a trace of albumin, 15-20 red blood cells per high power field and an occasional granular cast; and the specific gravity was 1.024. The total serum proteins were 6.8; albumin 4.3, globulin 2.5, giving an albumin-globulin ratio of 1.7-1. A lumbar puncture on May 8th gave a pressure of 120 mm. of water. Clear fluid was obtained, and contained no cells. The patient had a low-grade fever and was never entirely conscious or cooperative. He was given subcutaneous fluids, oxygen, and digifolin. On May 9th the patient became rapidly worse, cyanotic, cold, clammy, and almost pulseless. Coarse rales appeared at the lung bases, the heart action was faint and rapid. The right pupil was larger than the left and fixed to light. The respirations were rapid and shallow. He was given 50% glucose intravenously and Lanatocide C intravenously, as he appeared to be in complete circulatory failure. He expired on the same day.

* * *

CLINICAL DISCUSSION—DR. MCLESTER

This history resolves itself into three parts with the following

SALIENT FEATURES

Two and one-half years ago

Dyspnea, cough, hemoptysis
Edema
Cardiac hypertrophy
Marked hypertension

One and one-half years ago

Severe precordial pain, several hours, accentuated by exercise
Aphasia, temporary
Headaches
Pains in calves of legs
Hypertension
Arteriosclerosis

Recently

Semicomatose
Hypertension
Prostate enlarged
Fever; red blood cells 6,400,000; non-protein nitrogen 50 mg.%
Death

What caused this man to seek admission to the hospital at intervals for two and one-half years? Apparently there were four significant disorders: (1) arteriosclerosis, (2) vascular hypertension, (3) hypertensive heart disease, and (4) heart failure. We can simplify this, however, by saying that one underlying factor seems responsible for everything else, the arteriosclerosis. This dominated the picture.

That his disabilities were of many years duration is evident in the fact that on his first visit to the hospital two and one-half years ago he was already deep in myocardial failure. The shortness of breath with cough and blood-tinged sputum, the edema and the hypertension with cardiac hypertrophy can all be taken as evidence of the degree of his extremity. Under digitalis and rest, as is usual in the first attack of cardiac failure, he improved and left the hospital.

A year later he returned. What was immediately responsible for this admission? The most striking feature of this second illness was precordial pain lasting several hours and accentuated by exercise, apparently a coronary crisis. Was it angina? No, the duration of the pain was too long. The pain of angina can as a rule be measured in seconds and minutes, not in hours. Was it coronary thrombosis? True, there was no history of subsequent fever or leucocytosis, but too much importance should not be attached to this; slight fever is often overlooked. And, too, the subsequent drop in blood pressure and change in the character of the murmur is definitely suggestive of lasting myocardial injury. I would conclude that the patient came to the hospital this second time because of coronary occlusion with resulting myocardial infarction.

How are we to explain the headaches and the aphasia? Did he have a brain tumor? This sometimes slips up on us. No, the absence of papilledema and other neurological signs of brain tumor, as well as the evident part played by his arteriosclerosis, points in another directon. He apparently had extensive involvement of the cerebral vessels. Witness the "nicking" of the veins and the tortuosity of the arteries of the retina. Could he have had a massive cerebral hemorrhage or thrombosis? There was nothing in the picture to suggest this, no sudden catastrophe, no paralysis. More probably he had

from time to time experienced minute hemorrhages or thromboses of the smaller cerebral vessels. Such vascular accidents, with resulting areas of encephalomalacia, occur more frequently than is commonly recognized. They are responsible for much of the irascibility, loss of memory, and psychic letdown of old persons with arteriosclerosis. I believe Dr. Baker will tell us that he finds areas of softening in the brain of this man.

Finally, what was the cause of the patient's death? Did he have terminal pneumonia such as is so often revealed at these conferences? There is nothing here to point to pneumonia. Did he have uremia? He was drowsy and semicomatose, but the optic discs apparently were clear and the nonprotein nitrogen of the blood was not increased beyond the figure we ordinarily see in moderate dehydration, i.e., 6,500,000 red blood cells. No, it does not appear that he died of renal incompetency or immediately of heart failure. The heart, no doubt, played a part in bringing him to his end, but the determining factor was probably arterial, more particularly the effect of arterial disease upon the brain. When the entire story is reviewed we can attribute this man's death, I believe, largely to cerebral arteriosclerosis with resulting encephalomalacia. I would, therefore, offer the following:

Clinical Diagnosis

1. Arteriosclerosis, involving both cerebral and coronary vessels.
2. Encephalomalacia (brain softening).
3. Cardiac hypertrophy (hypertensive).
4. Old myocardial infarct.

* * *

Pathological Discussion—Dr. Baker

My opinion agrees with yours, Dr. McLester, that the fundamental disease in this individual is arteriosclerosis; but when we say this, we must include arteriolosclerosis, for disease of the arterioles of the kidney may have been of great importance. Arteriolosclerosis may or may not be the same disease as arteriosclerosis of the larger vessels.

At autopsy there was no anasarca nor large quantities of fluid in the abdominal or thoracic cavities, nor was there chronic passive congestion of the viscera. In other words, there was no evidence of congestive heart failure.

The heart weighed 550 grams, twice as much as normal. There was left-sided cardiac hypertrophy, dilatation of both sides of the heart, but no valvular disease. In addition to cardiac hypertrophy due to hypertension there was a second process, namely a healed infarct. This lay in the left ventricle in the region of supply of the left coronary artery. There was a pericardial adhesion at the base of the left ventricle as a result of the healing of the pericarditis which originally accompanied the infarct. Grossly, there appeared to be a complete occlusion of a branch of the anterior descending branch of the left coronary artery, and, also, another complete occlusion of the right coronary artery. However, microscopic sections indicated that there was not complete occlusion, and that a minute lumen remained in each of these apparently occluded coronary arteries.

The lungs showed no lesions. The kidneys presented a finely granular appearance with some loss of renal substance. Microscopic sections showed much arteriolosclerosis. Thus benign nephrosclerosis was present. The prostate was enlarged by adenomatous nodules, but there was no thickening of the bladder musculature, and no dilatation of the ureters and pelves of the kidneys. Therefore, there was no indication that the prostatic hypertrophy had been significantly obstructive to the outflow of urine. The aorta showed a high degree of arteriosclerosis. Other vessels were sclerotic. For example, the superior mesenteric artery had a much compromised lumen as a result of the arteriosclerosis.

In the brain there was neither massive hemorrhage nor massive softening. In fact, there were no hemorrhages at all. But numerous small foci of softening were present. Cystic foci, the result of ischemia which occurred months or years before death, were found in the corpus striatum of each side and in the left side of the pons. A more recent area of softening occurred in the frontal lobe, and, microscopically, showed fat-laden macrophages and hemosiderin pigment indicating that the process was a matter of weeks and months rather than of years duration. Finally, there was a fresh hemorrhagic softening 2 cm. in diameter in an occipital lobe.

The *Anatomical Diagnosis* can be placed under two main headings:

1. **Arteriosclerosis**
   a. **Multiple foci of cerebral softening (encephalomalacia)**
   b. **Coronary sclerosis and healed infarcts of heart**
2. **Arteriolosclerosis**
   a. **Benign nephrosclerosis**
   b. **Hypertensive cardiac hypertrophy**

Why did I say that arteriolosclerosis might be of great importance? It was because hypertension is closely related to arteriolosclerosis, and because there is much evidence to indicate that hypertension aids in the causation of arteriosclerosis.

What was happening at each of the three admissions? On the first one the red-tinged sputum and the pedal edema suggest cardiac infarction with temporary heart failure. Favoring this view is the elevated white blood count. However, there may have been, instead, transient failure of an hypertensive heart not yet affected by infarction.

The episode of the second admission, pain over the precordium for several hours, made worse by walking, suggests myocardial infarction, and the scarred myocardium is consistent with this interpretation. The headache and difficulty in speaking were undoubtedly related to cerebral softening. The cystic encephalomalacia located in the left corpus striatum beneath the insula is to be connected with this event, since this is the area affected in the mixed form of aphasia. The cardiac murmurs heard in the first two admissions are not to be correlated with valvular disease since no lesions of the valves were found at autopsy. There may have been relative insufficiency of a valve secondary to cardiac dilatation, and murmurs may have occurred on that basis.

On the third admission there was coma. This appears to me to be related to the cerebral lesions rather than to uremia, since the non-protein nitrogen never reached high levels.

The exact mechanism of death cannot be clearly stated. There may have been recent occlusion of an artery in either the heart or the brain, so recent that it had no anatomic counterpart in the form of infarction. No such arterial lesion could be found.

But is it necessary to labor longer with explanations and mechanism? The patient died, in brief, of arteriosclerosis, of degenerative vascular disease of the arteries and arterioles.

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NEWS ITEMS

The Department of Ophthalmology, Medical College of Alabama, has recently been the recipient of a Zeiss slit lamp microscope, a large number of rare pathological slides of Treacher Collins, and a selection of out-of-print classic ophthalmological books from Dr. Charles A. Thigpen of Montgomery, Alabama.

Walter J. Kyle, D. D. S., has recently been appointed instructor in Ocular Prosthetics in the Department of Ophthalmology, Medical College of Alabama.

The Medical College of Alabama announces the receipt of two grants made to Dr. J. K. Cline, Associate Professor of Biochemistry.

Distillation Products, Inc. awarded him $2,500 for research in Vitamin E therapy, and a grant of $7,500 by the Research Corporation for a study of antianemic substances has been made this month.

In studying the antianemic substances, Dr. Cline will work with substances that stimulate the regeneration of red blood cells and will attempt to determine the mechanism of their actions.



Medical College and University Hospital

Dr. Cline, formerly Director of the Laboratory of the Nutrition Clinic at the Hillman Hospital, was appointed to the faculty of the Medical College in March 1946.

Dr. J. F. A. McManus has been appointed Assistant Professor of Pathology at the Medical College of Alabama. The appointment was made this fall.

Dr. McManus was born in Canada and has lived in the United States since 1920. He received his B. S. degree from Fordham in 1933 and his M. D. from Queens University, Kingston, Ontario, Canada. After serving as Assistant Resident in Pathology at Johns Hopkins he was Resident in Pathology at the New York Hospital, Cornell Medical College.

In September 1940 he joined the Canadian Army and when he left the Royal Canadian Army Medical Corps in 1945 he was a Major. He has come to the Medical College of Alabama after doing research in Histochemistry at the University Museum, Oxford, England.

Dr. Clarence E. Klapper and his wife, Dr. Margaret Strange Klapper, have been appointed to the faculty of the Medical College of Alabama.

Dr. Clarence E. Klapper, Assistant Professor in Anatomy, was born in Schenectady, New York. He received his A. B. degree from Union College, Schenactady and his M. A. and Ph. D. degrees from Cornell University. He came to the Medical College after teaching as instructor, then assistant professor, in biology at Hobart, Geneva and instructor, then assistant professor, in anatomy at L. S. U. Medical School.

Dr. Margaret Strange Klapper, Instructor in the Department of Medicine, was born in New Orleans. Her B. S. degree came from Newcomb College and her M. D. from Tulane Medical School. At Charity Hospital she served a year's internship and three years' residency in internal medicine. Before Dr. Klapper came to the Medical College she was an instructor in Medicine at Tulane Medical School.

STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

B. F. Austin, M. D.
State Health Officer

WARNINGS ON APPENDICITIS

A few months before V-E Day newspapers published an appealing human interest story about an American lieutenant who felt a pain in his side just before he and his buddies were about to take off on a long flight to Russia. He was pretty certain that that pain meant appendicitis, a serious disease, if neglected. But he had long been looking forward to this important mission and decided to keep his stomach pain to himself. Concealing his concern over his health, he went through the briefing along with his buddies, climbed into his plane and took off. After completing his mission—this was a shuttle bombing flight—he landed in the U. S. S. R. and then, for the first time, told others about those pains. He was rushed to an American field hospital for an operation and was soon on the way to recovery.

The present writer shares the admiration which people generally feel for this young flier. Nevertheless, he urges others not to follow that lucky flier's example. There is little chance of anybody's being able to follow it literally of course, with the war over. But there are many who are taking as dangerous and reckless a chance as he took. Were that not true, appendicitis would not be killing Americans at an average rate of more than 7,700 a year and Alabamians at the rate of nearly 190 a year. For in almost no other disease is delay as dangerous as it is in this one.

The U. S. Public Health Service tells about another chance-taker in one of its booklets issued some time ago. He—presumably a hypothetical character representing many different persons—was named Leonard Longshot. Leonard woke up one morning with a bad stomach-ache. Instead of calling a physician, he took a big dose of castor oil and went back to bed with a hot water bottle. About ten hours later he was on the operating table while surgeons engaged in a grim race with an appendix about to burst and send poison throughout his system. The appendix won, but by a com-

paratively narrow margin. For awhile the outcome was in considerable doubt, and it looked as though Leonard's chance-taking would cost him his life. However, he finally got the upper hand, and convalescence began. It was a long and costly convalescence, too, requiring him to spend a lot of money for hospital bills and be away from his job for about two months.

Still another victim of delay in obtaining proper care after experiencing those telltale symptoms was even more unfortunate. He was a newspaper publisher living in one of Alabama's sister-states. He consulted his physician when those pains appeared and was told, after a thorough examination, that he had appendicitis. The doctor urged an immediate operation, but that was an unusually busy time for the publisher and he had lots of things he wanted to attend to before going to the hospital. So he put it off. That postponement was fatal, for his appendix burst, like Leonard Longshot's. And, unlike Leonard, he was not able to have an operation in time to save his life.

This form of illness is caused by inflammation of what the doctors call the vermiform appendix, which is a part of the large intestine or colon. It is situated in the lower right-hand corner of the abdomen and in size and shape is somewhat larger than a fish worm.

This type of inflammation has been recognized as a definite form of illness for a century or longer, but removal of the inflamed appendix, so commonplace today, was almost out of the question until surgery came into its own after the discovery and widespread use of anesthesia and, more importantly, aseptic surgery; for, as dangerous as an inflamed appendix was and still is unless removed, even that danger was less than that involved in undergoing an abdominal operation with the patient subjected to the shock and agonies of surgery unrelieved by any form of anesthesia.

Inflammation of the appendix is not unlike other types of inflammation. Like an angry boil on the neck or leg, an inflamed appendix becomes greatly enlarged, turns red, produces fever and of course causes great pain. These symptoms are quite marked under the best of conditions but become much more so whenever the appendix —or leg or neck—is used. Since the intestines perform their normal functions entirely automatically, a person cannot protect his appendix in the same way that he can protect a boil, by keeping it quiet and out of use. But nature has a way of doing things for sick organs which humans cannot do. The intestines try to do that by stopping their normal motion, and that causes the patient to become constipated. Constipation leads to the use of laxatives, unless one knows enough about appendicitis to avoid them at such a time. And, as already pointed out emphatically, the use of laxatives under such circumstances is virtually an invitation to death.

Another dangerous misapprehension regarding appendicitis is that it is nothing for parents to worry about as far as their young children are concerned. While it is true that the great majority of cases occur among older persons, others are by no means immune. Three deaths among Alabama children under five years of age were reported in the most recent year for which vital statistics reports covering this point are available. During that same twelve-month period appendicitis was responsible for 24 deaths among Alabamians less than ten years of age and 47 among those less than 15 years of age. More than one-third of all appendicitis deaths occurring in this State during that year occurred among persons too young to vote. A well known physician had this to say about the appendicitis danger among children on the basis of personal experience:

"Some time ago I operated on a little girl four years old who had been sick two or three days with abdominal pain, nausea and vomiting. She had not been able to retain anything in her stomach for 48 hours. The mother of the child called the family physician at the end of this time with the idea of getting advice over the telephone with reference to her treatment. Her doctor felt sure from the mother's descripiton of the condition that it was a ruptured appendix. The child was operated upon as soon as she could reach the hospital. She had a ruptured appendix and extensive peritonitis and died a few days after the operation."

The writer has placed so much emphasis upon sudden, violent pain in the abdomen as a symptom of appendicitis that he feels impelled to remind his readers that they can have the disease without it. Indeed a study of appendicitis cases conducted some years ago showed that 16 per cent of them experienced no unusual abdominal pain. This

study also showed the unwisdom of relying too much upon another widely held belief regarding this disease; that abdominal pain does not mean appendicitis unless it is felt immediately in the lower right side of the abdomen. In about half of the cases studied it was localized there, but in the others, a significant percentage, it first localized elsewhere. However, it usually becomes localized in the "appendix region" within 36 to 48 hours after being felt in other parts of the body temporarily. Needless to say, a person suffering sharp abdominal pain outside the "appendix region" should not wait for it to be felt there but should seek medical advice immediately, as those 36 to 48 hours intervening between beginning of the pain and its localization in the "appendix region" may mean the difference between prompt recovery and death.

Much less likely to attract attention but also much more reliable as an indication that one has appendicitis is elevation of temperature. Whereas, as just pointed out, a significant percentage of all appendicitis cases do not have acute abdominal pain, practically all cases have fever, although frequently it is only slight. Unfortunately, comparatively few people ever use a thermometer unless they have other symptoms or there is other reason to think they are sick. When one has abdominal pain, therefore, one should take one's temperature at once. If it is elevated, he should assume for the moment that he has this disease and observe all precautions which have been impressed upon him, particularly the avoidance of laxatives. And of course he should lose no time in calling a physician for a professional diagnosis. In one of the medical textbooks of their joint authorship, Sir William Osler and Dr. Thomas McCrae characterized the familiar clinical thermometer as "one of the most truthworthy guides in the diagnosis of acute appendicitis." Another physician expressed virtually the same opinion when he declared that he would not operate upon a person for appendicitis if the patient's temperature had been normal during the first 36 hours after the onset of illness.

The amount of fever varies widely in different patients. However, it is seldom under 100 degrees or over 102 degrees in adults, although children, whose body reactions are often much more marked than older persons', occasionally run appendicitis temperatures as high as 103.5 degrees.

There are other symptoms of appendicitis of course. The pulse rate often increases markedly. The victim may experience varying degrees of nausea and feel a strong inclination to vomit. The tongue is usually coated and moist. As may be assumed from what has already been said in this article, constipation is often present, especially in adults. Strangely enough, youngsters sometimes actually suffer from diarrhea.

The small, tube-like appendix, opening into the head of the large bowel, is a closed sac into and out of which fluid and semifluid material passes readily. From time to time, however, something—a piece of fecal matter or some foreign substance—does not pass out normally but lodges there and causes damage to the interior of the appendix. Sometimes it may even block the exit of fecal matter. Fortunately, a case of appendicitis does not occur every time this happens. Otherwise this form of illness would be much more prevalent than it is. But when germs of inflammation are admitted to the appendix while it is damaged or blocked in this way, the disease develops. The bowels always contain germs of course. So it appears to be largely a matter of pure luck that these two conditions do not occur at the same time.

Reference has already been made to the danger involved in operating for appendicitis before anesthesia and aseptic surgery became widely used procedures. Even after that happened, the relatively crude surgical procedures—crude, that is, by modern standards—and delay in bringing surgery into play kept the appendicitis death rate high. Slightly more than 17 per cent of the cases treated surgically between January 1900 and August 1904 at the London Hospital ended fatally. Nowadays, the mortality of surgically treated cases is said to be only about one-half of one per cent. Medical opinion is in general agreement that appendicitis mortality would be virtually nonexistent if it were possible to resort to this procedure within eight or twelve hours after the onset of the disease.

This places the burden of getting well squarely upon the individual patient. To save those all-important hours, he should be

on the watch-out for the symptoms and call his physician at once whenever any of them —or any other physical changes suggestive of this disease—appear.

BUREAU OF LABORATORIES

H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

OCTOBER 1946

Examinations for diphtheria bacilli and Vincent's	559
Agglutination tests (typhoid, Brill's and undulant fever)	929
Typhoid cultures (blood, feces and urine)	635
Examinations for malaria	644
Examinations for intestinal parasites	2,187
Serologic tests for syphilis (blood and spinal fluid)	29,870
Darkfield examinations	55
Examinations for gonococci	4,285
Examinations for tubercle bacilli	1,904
Examinations for meningococci	1
Examinations for Negri bodies (microscopic)	90
Water examinations	1,206
Milk and dairy products examinations	3,221
Miscellaneous	600
Total	46,186

Disease and the Aged—Even though the numbers of our population above the age of fifty increase to the extent that, from numbers alone, the problem is a public health one, the mass approach applied by public health departments to the control and eradication of such diseases as typhoid fever and even tuberculosis cannot be applied here. The nature of the diseases is different. Sadly enough, the etiology of many of the disturbances is unknown. If the causes were discovered and if means of control were established, the approach would be radically different. With our present knowledge an attack on the environment would not seem a likely approach. Individual care would be necessary for each individual patient. The technics of the cancer detection and prenatal clinic would probably be necessary, a program which, with proper education of the public and the proper attitude of the physician, could be as well—likely even better—carried out in the office of the private physician. In geriatrics, as in pediatrics, adequate clinical facilities in the hands of an interested and alert clinician will give the best results in our present state of medical knowledge. Here, preventive procedures are individual clinic problems best cared for in the office of the practicing physican.—*Sodeman, New Orleans M. & S. J., Nov.* '46.

BUREAU OF PREVENTABLE DISEASES

CURRENT MORBIDITY STATISTICS

1946

	July	Aug.	E. E.* Aug.
Typhoid	6	6	33
Typhus	69	63	73
Malaria	162	266	803
Smallpox	0	0	0
Measles	124	37	29
Scarlet fever	35	37	50
Whooping cough	80	315	99
Diphtheria	24	31	48
Influenza	29	53	47
Mumps	9	10	28
Poliomyelitis	87	126	13
Encephalitis	2	1	1
Chickenpox	7	2	5
Tetanus	4	1	4
Tuberculosis	324	378	255
Pellagra	3	2	12
Meningitis	4	6	7
Pneumonia	253	190	117
Syphilis	897	1820	1367
Chancroid	14	29	11
Gonorrhea	806	1012	541
Trachoma	0	0	0
Tularemia	1	0	1
Undulant fever	7	22	8
Dengue	0	0	0
Amebic dysentery	8	3	0
Cancer	284	218	0
Rabies—Human cases	0	1	0
Positive animal heads	58	46	

* * *

	Aug.	Sept.	E. E.* Sept.
Typhoid	6	6	38
Typhus	63	41	62
Malaria	266	202	883
Smallpox	0	0	0
Measles	37	16	28
Scarlet fever	37	36	78
Whooping cough	315	11	66
Diphtheria	31	48	115
Influenza	53	107	70
Mumps	10	15	23
Poliomyelitis	126	38	15
Encephalitis	1	5	2
Chickenpox	2	5	6
Tetanus	1	6	5
Tuberculosis	378	292	230
Pellagra	2	2	11
Meningitis	6	6	7
Pneumonia	190	161	105
Syphilis	1820	1177	1426
Chancroid	29	18	12
Gonorrhea	1012	683	482
Trachoma	0	0	0
Tularemia	0	0	0
Undulant fever	22	2	8
Dengue	0	0	0
Amebic dysentery	3	2	0
Cancer	218	263	0
Rabies—Human cases	1	0	0
Positive animal heads	46	31	0

As reported by physicians and including deaths not reported as cases.

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

Occupational Dermatitis—It is worth pointing out that the one single measure most valuable in the prevention of occupational dermatoses is cleanliness of the worker. Daily baths with mild soaps, daily change of clothing, a clean locker and shower room and a clean plant will do more to prevent dermatitis than anything else. Indeed, the chief virtue of the so-called protective ointments is that the employee will always wash it off from his skin before he goes home, thus removing not only the ointment but the offending substances which might cause a dermatitis.—*Shaw, J. M. A. Georgia, Nov.* '46.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES, JULY 1946, AND COMPARATIVE RATES FOR 1946, 1945 AND 1944

Births, Stillbirths, and Causes of Death	Number Registered—During July 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births (exclusive of stillbirths)	6483	**	**	27.3	26.0	28.5
Stillbirths	177	**	**	27.3	24.5	27.6
Deaths (exclusive of stillbirths)	1906	1098	808	8.0	8.4	9.2
Infant deaths, Under one year	226	127	99	34.9	40.2	43.5
Under one month	178	106	72	27.5	23.4	26.0
Typhoid and paratyphoid 1, 2	1		1	0.4	1.2	1.3
Epidemic cerebrospinal meningitis 6					1.6	1.7
Scarlet fever 8						
Whooping cough 9	1		1	0.4	3.3	3.4
Diphtheria 10	2		2	0.8		0.8
Tuberculosis, all forms 13-22	84	29	55	35.3	40.7	36.0
Malaria 28	3	2	1	1.3	4.1	2.1
Syphilis 30	32	9	23	13.4	14.2	14.0
Influenza 33	4	1	3	1.7	3.3	4.6
Measles 35	3	2	1	1.3	0.4	1.3
Poliomyelitis 36	3	3		1.3	0.4	0.4
Encephalitis 37	1	1		0.4	0.4	0.4
Typhus fever 39	3	3		1.3	2.0	2.5
Cancer, all forms 45-55	181	132	49	76.1	88.7	75.4
Diabetes mellitus 61	25	20	5	10.5	9.0	9.7
Pellagra 69	4	1	3	1.7	4.1	3.0
Alcoholism 77	4	3	1	1.7	0.4	
Intracranial lesions 83	201	123	78	84.5	88.7	92.3
Diseases of the heart 90-95	421	251	170	177.0	141.2	194.4
Diseases of the arteries 96-99	28	16	12	11.8	7.7	11.4
Bronchitis 106	3	3		1.3	1.2	2.1
Pneumonia, all forms 107-109	58	33	25	24.4	32.5	34.7
Diarrhea and enteritis (under two) 119	14	6	8	5.9	13.0	24.1
Diarrhea and enteritis (two and over) 120	3	1	2	1.3	1.2	5.5
Appendicitis 121	12	9	3	5.0	6.9	8.0
Hernia, intestinal obstruction 122	18	12	6	7.6	10.2	7.2
Cirrhosis of the liver 124	6	6		2.5	1.6	3.4
Nephritis, all forms 130-132	123	65	58	51.7	62.7	64.0
Puerperal causes 140-150	17	4	13	6.7	25.9	44.8
Puerperal septicemia 140, 142a, 147	8	2	6	3.4	10.7	10.1
Suicide 163-164	12	7	5	5.0	5.3	6.8
Homicide 165-168	32	9	23	13.5	14.2	11.8
Accidental deaths (exclusive of motor vehicle) 169, 171-195	105	58	47	44.1	49.2	54.2
Motor vehicle 170	70	53	17	29.4	15.1	16.5
All other known causes	312	197	115	131.2	145.2	143.6
Ill-defined and unknown causes 199-200	120	39	81	50.4	60.6	75.4

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births, deaths from specific causes per 100,000 population; deaths from puerperal causes per 10,000 total births. All rates are based upon the July report of the years specified.

**Not available.

Gynecologic Patient Study—The effects of the global war upon civilian medical practice have reached into all specialties and are rapidly becoming more obvious. Gynecologists are liberally represented in the many thousands of physicians who have entered the armed forces. Consequently, many patients have been forced to consult non-specialists because of their pelvic symptoms. Some of these physicians or non-specialists are older men who under normal circumstances would have retired or had already retired but were literally drafted to continue or to resume practice and aid as much as possible in the care of civilian ill. Others have been practicing in specialties away from pelvic complaints. As such, these have drifted from old accepted principles of gynecologic patient study and further have not acquainted themselves with the few diagnostic aids which have been added since their earlier years in practice.

Another effect of the war has been produced directly upon the gynecologist, leaving him with more work than he can conveniently perform. Sometimes he has tried to compensate by circumventing the usual diagnostic aids, moving directly from office examination to major surgery. The motivating "hunch" or working diagnosis cannot always be accurate and sometimes leads him to a procedure which is not for the best interest of the patient's health.

These reasons, as well as the belief that there is no short cut to adequate gynecologic patient study, form the incentive for this presentation. They suggest that it is high time physicians pause and review the basic principles of work-up in those patients with pelvic and lower abdominal complaints.

It appears that biopsy curettes are being utilized more and more for diagnostic procedures in cases of menorrhagia and metrorrhagia. This practice must be condemned with all possible vigor. The suction and the Randall types of curettes were devised for use in obtaining endometrial biopsies in those infertile or sterile women with normal or relatively normal menses, in order to prove or disprove the occurrence of ovulation. They were not intended for purposes of diagnostic curettage in cases of abnormal uterine bleeding.

From surgical pathological material, it has been determined that the average operator utilizing the ordinary curettes removes only 35 per cent of the uterine mucosa at the time of diagnostic curettage. It can therefore be seen that the average curettage would not infrequently miss an early adenocarcinoma of the corpus uteri. This failure suggests that the recovery of tissues from such lesions by the use of biopsy curettes is extremely inferior, in fact, low enough to make these new curettes worthless for such purposes. It must further be recalled that a high percentage of diagnostic curettages thoroughly done constitute good therapy, thus curing the disease temporarily or permanently and rendering unnecessary the use of large doses or varied preparations of the endocrines.—*Dippel, Texas State J. Med., Nov. '46.*

BOOK ABSTRACTS AND REVIEWS

The Management of Fractures, Dislocations and Sprains. By John Albert Key, B. S., M. D.; and H. Earle Conwell, M. D., F. A. C. S. Fourth edition. Cloth. Price, $12.50. Pp. 1322, with illustrations. St. Louis: The C. V. Mosby Company, 1946.

It is gratifying to review the revised edition of a medical classic which has maintained its sound judgment in the treatment of fractures and injuries despite the various trends and "fads" found all too frequently in current medical literature. Once again this comprehensive text presents the methods clinically tried and tested over a period of years and based on the authors' and collaborators' extensive personal experiences. Hence, the type of treatment generally recommended is one most certain to achieve good results with the minimum of risk or complications. The general practitioner, traumatic surgeon, or specialist would still achieve the largest number of good results by adhering to this text and leave the controversial or as yet untried methods of fixation to the small group of pioneers in the field. Many of the vogues which were practical during military exigencies will have to be unlearned and the student and practitioner should realize the urgency of returning to the classical principles and methods as expounded by Key and Conwell.

As in previous editions there are the anatomical presentations prefacing the individual injuries as a basis for understanding the deformity produced and treatment necessary. There is an excellent general review of the commonly used equipment, fracture tables, splints and plaster of Paris technique. Since fractures are always emergencies they will never all be treated by specialists, hence their reviews of equipment and techniques, as insertion of a Kirschner wire, are of special value to the general practitioner.

The introduction of the term "complex simple fracture" to describe the complicated fracture, although not compound, is a valuable addition to fracture nomenclature. The continued stress the authors place on the degree of soft tissue injury is also a forward step in fracture treatment as too often in the past we have been concerned only with the bony injury and neglected the soft tissue damage which results in the greater cause of disability. Hence, it is of importance to determine the degree of circulatory impairment, venous occlusions, muscle crushing and tendon injury at the time the fracture is first seen so that one can minimize the late complications as chronic edema, fibrositis, and loss of joint motion. The degree of soft tissue injury also plays a large role in determining delayed and non-union of fractures, a fact hitherto overlooked. The chapters on medicolegal aspects and compensation evaluation are indispensable to anyone doing compensation work.

There are excellent chapters on injuries of the jaw and face by James Barrett Brown, and fractures of the skull and head injuries by Edgar Fincher. One of the most valuable additions to this edition is the section on cervical spine injuries by Arthur Davis, demonstrating methods of reduction and immobilization of these injuries. The entire section on back injuries has been revised to include discussions of low back derangements, intervertebral disc protrusions, back strains, chronic arthritis and spondylolisthesis. There is a good differential diagnosis of cervical root pain and cervical disc lesions. Although the entire subject of disc protrusion maintains its controversial aspect in this text too, it is gratifying to note the caution and conservative treatment advocated in treating the compensation back.

The section on clavicular injuries includes the newer methods of clavicular resection for old acromioclavicular or sternoclavicular injuries. The hanging cast method is described and the principles of its action and application demonstrated. In all the chapters on specific injuries there is an abundance of roentgenograms illustrating the fractures, and there are words of caution throughout the text to prevent the common errors and complications. Many of the x-ray prints need to be replaced by clearer cuts and it would be helpful to include more line drawings or composite drawings of the various fractures.

Perhaps it would have been better to delete the controversial opinions cited so frequently in the text or they could have been added as an addendum at the end of the book rather than include them in the body of the text. Although the honesty of the authors' differences of opinion is commendable it does cause confusion in the mind of the reader seeking advice on treating a particular injury. As the editions continue to grow in size it would probably be easier on the reader to handle a two volume edition than the present single volume.

The revised edition includes material on the use of penicillin, newer methods in treatment of compound fractures; application of external skeletal pin fixation; the various types of hip nailing procedures, and many of the newer types of splints, braces, corsets and surgical appliances. Hence, the book is completely up-to-date and again remains the most comprehensive text in its field. One may rightly wonder, in closing, how have the editors been able to do all of this without increasing the price of the book; and one can only add congratulations on keeping the price within the range of every student and practitioner.

Benjamin Meyer, M. D.

A Primer for Diabetic Patients: An Outline of Treatment for Diabetes with Diet, Insulin and Protamine-Zinc Insulin, Including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions. By Russell M. Wilder, M. D., Ph.D., F. A. C. P., Professor and Chief of the Department

of Medicine of the Mayo Foundation, University of Minnesota; Senior Consultant in Division of Medicine, Mayo Clinic. Eighth edition, reset. Cloth. Price, $1.75. Pp. 192, with 8 illustrations. Philadelphia and London: W. B. Sounders Company, 1946.

For many years it has been my practice to train the diabetics who come under my care. In a period of two or three months it is surprising how much a patient can learn about making substitutions in his diet, testing his urine, reporting on the amount of sugar spilled in twenty-four hours and the use of a hypodermic for the administration of insulin. Even the uneducated patient can learn with a little patience, and the problem of treatment becomes much simplified once he knows the fundamentals of caring for himself. The physician will find considerable assistance from any manual on diabetes which is written in terms simple enough for the patient to understand. Any book that is too long or too technical is useless when put in the hands of a patient. Wilder's book is written primarily to teach the patient how to care for himself under the guidance of his physician. The book is small, simply worded and very concise, and is practical in every way except that occasionally the author gives advice to the physician which may prove confusing to the patient. For example, he describes the method of determining the dose of insulin and the care of the patient in coma. Since these things are usually too complicated for the patient to handle himself, it seems wise that he be given no such information since he is likely to feel that the physician does not know what he is doing if he does not follow the exact method outlined by the author. After all, Wilder has the authority of the Mayo Clinic behind him and many patients are likely to think that his method of treatment is the only possible correct one.

With the exception of this criticism, which appears to the reviewer to be a very valid one, the book is quite satisfactory as a guide to be placed in the hands of diabetic patients by the physician who wishes to have intelligent assistance in the handling of his cases of diabetes.

C. K. Weil, M. D.

AMERICAN MEDICAL ASSOCIATION NEWS

QUESTIONNAIRE SENT TO 45,000 DISCHARGED MEDICAL OFFICERS

The Committee on National Emergency Medical Service of the American Medical Association is mailing a comprehensive questionnaire to more than 45,000 discharged medical officers of World War II.

An editorial in the November 23 issue of The Journal states that the "questionnaire gives opportunity for an expression by the discharged medical officer of his observations and his opinions. The Bureau of Medical Economic Research of the American Medical Association has aided in the development of the questionnaire, so that the replies can be recorded on punch cards and permit statistical data which should be of vast help to the government services concerned as well as to the physician who volunteers his services in response to the nation's call."

Edward L. Bortz, M. D., of Philadelphia, chairman of the committee, states that the "results of the questionnaire will serve as a useful guide in preparing for any new national emergency. . . . The committee is a fact finding board and hopes to make recommendations that will lead to better utilization of medical skills and resources in a future emergency."

The editorial states that following a "resolution passed by the House of Delegates of the American Medical Association in December 1945, the Board of Trustees appointed a Committee on National Emergency Medical Service to undertake a critical study of the duties of medical officers during the war, with special reference to (1) opportunities for study, research and actual treatment of the sick, (2) rotation of medical assignments and (3) quasimedical duties for which technicians and specially trained enlisted personnel might replace physicians."

The committee, headed by Dr. Bortz, includes Drs. Harold S. Diehl, Minneapolis; Perrin H. Long, Baltimore; Harold C. Lueth, Omaha; O. O. Miller, Louisville, Ky.; James C. Sargent, Milwaukee, and V. C. Tisdal, Elk City, Okla., thus having in its membership men who served in the Army and Navy medical departments and civilian physicians.

"Several months ago," states the editorial, "the committee sent a pilot questionnaire to 1,000 former medical officers and received 470 replies, which are an indication of the great interest in this study."

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BACKGROUND

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OBSERVATION ON MALARIA IN THE MEDITERRANEAN THEATRE OF OPERATIONS UNITED STATES ARMY, 1943-1945

JAMES B. McLESTER, M. D.
Birmingham, Alabama

The lands around the Mediterranean are the historic seat of occidental civilization, and from the earliest times in history there have been wars in that area. In all of these, except the most recent, malaria has played a major role in determining the outcome. While not affecting the result of the recent Mediterranean campaigns the disease was important there although much less so than in many places in the Pacific. Still, in 1943, only battle casualties and respiratory diseases caused more hospitalization in the Mediterranean Theatre of Operations. In 1944 and 1945 malaria was less significant though it did occur to appreciable degrees.

American and British troops invaded North Africa in November 1942 and fairly quickly gained control of French Morocco and Algeria. The late winter and spring of 1943 were spent in the Tunisian campaign. North Africa in winter is wet, but too cold for mosquito breeding. At other times it is a hot dry country but not a desert, and there are a great many marshes and streams. It is a country where malaria is endemic to a fairly high degree. There was malaria during that first winter because of transmission from the natives by semi-hibernating insects. By the end of the North African campaign in Tunisia in late spring, there was much malaria.

During the Sicilian campaign, in July and August 1943, malaria reached its peak of the entire war in the Mediterranean. The rate in all combat troops went as high as 800 cases per thousand per annum and much higher in some smaller units. This rate, though not even of the same order of magnitude as some reports from the Pacific, was sufficient to justify military concern.

In September 1943 the long, slow, continuous Italian campaign began. The transmission season was soon over but very frequent recurrent malaria of Sicilian or African origin was seen through the winter of 1943-1944 during the stalemate of Cassino and Anzio. At the onset of summer, 1944, combat moved further north out of the worst malarious zones. Base Section troops remained behind in Africa and Southern Italy and Air Corps troops were on Sardinia and Corsica. The disease, though less prevalent, was omnipresent and appreciable in 1944 and 1945.

Troops who invaded Southern France in August 1944 had trained in malarious areas and for this reason there was some incidence in this campaign, but it was not great.

From early in the summer of 1943, suppressive atabrine therapy of one and one-half grains daily was ordered during the mosquito seasons. The degree to which it

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Read before the Association in annual session, Birmingham, April 16, 1946, as a part of a Symposium on War Medicine.

Experimental data mentioned in this paper were previously published by this author. (Med. Bull. Mediterranean Theatre of Operations, 3, 111, Apr. 1945.) Discussion of incidence of the disease is based on the author's memory of data seen and not on immediate reference to recorded official information. Opinions expressed are those of the author and are not necessarily the opinion of military authority.

was actually taken is unknown but one small study showed that most cases, primary or recurrent, were in men who were not taking the drug as ordered. Such prophylactic medication did delay the appearance of clinical symptoms. However there was no great upswing in malaria when the drug for all troops was discontinued for the winter. Whether suppressive doses of atabrine actually prevented infection is not known from any study done in the Mediterranean.

The British Armies had about as much malaria as we did but with more recurrent disease of Indian, Burmese, or Egyptian origin. I have not had the opportunity of seeing rates in German troops, but I understand them to be comparable to ours. Rates of recurrent malaria among Italian prisoners, later classed as co-belligerents and put in labor battalions, were rather higher than ours. I do not cite rates of occurrence in American or other groups. I believe such figures will be available to those students of public health or Military Medicine who would find them interesting.

P. falciparum and *P. vivax* were both seen in large numbers with a much smaller proportion of *P. malariae*. The prevalent organism varied from place to place. Clinically, all types and manifestations of the disease were seen.

Primary malaria was, of course, commoner early in the campaign, and it was a surprise to our non-southern colleagues how infrequently such cases started with regular chills, or even with chills at all. They more commonly had an irregular fever and often were under treatment in the hospital before the fever set up its typical periodicity. This was especially true of falciparum malaria. As the campaign progressed, recurrent malaria accounted for a progressively larger proportion, eventually half or more of the total. Recurrent malaria, more often than primary, showed the typically periodic chills.

Most soldiers were entirely well between attacks. True chronic malaria, chronic illness with very large spleen, anemia, cachexia, and otherwise asymptomatic parasitemia were rare. This was likely due to the availability of treatment and to the short periods that men spent in malarious areas and therefore the absence of repeated reinfection. The infrequency of double infections was probably for the same reason.

Cerebral malaria was fortunately rare. It occurred in both falciparum and vivax infections.

The diagnosis of malaria was generally made only after the demonstration of the parasite in the blood smear. The Army's diagnostic nomenclature allowed, however, a diagnosis of "clinical malaria" for the case in which the parasite was not found. This diagnosis was ordinarily used only where laboratory facilities were unavailable. In a series of 106 cases so diagnosed and included in the follow up to be described, there were about a third less with recurrences than in proven cases. This suggests that the diagnosis when made without laboratory confirmation was wrong about a third of the time. We were encouraged to use the diagnosis "Fever of Unknown Origin" when the parasite had not been demonstrated. In a large series of cases diagnosed fever of unknown origin on admission to one hospital near Naples in the summer of 1944, about half turned out to be malaria. By 1945 much malaria control work had been done and frequency rates were very much lower. In the summer of 1945, less than 10% of such fevers admitted to another hospital in the same area were found to be malarial.

I shall say little about treatment. Army authority told us that atabrine was as effective or more so than quinine. There were a few "die-hard" medical officers who disagreed, but the experience of most officers in the Mediterranean area made them accept the authority's view. Standard doses of both drugs were used. Suppresive atabrine was ordered for six months after an attack, regardless of season.

Recurrent malaria, largely Sicilian in origin, was a problem in the winter of 1943-1944 and stimulated interest in its factors causing recurrence. Figures on rates of recurrence in the Army in Italy were nonexistent. Therefore, a series of 413 cases was followed by checking the list of their names against the records of all hospitals in the theatre. Dates of admission and discharge, diagnoses, and disposition were recorded. Patients who were not hospitalized for at least one of their recurrences were thus missed but it is believed that these were few. Theatre personnel records gave the time factor in the follow up. These data

were compared with our clinical records on the same patients. In all of these studies, only the fact of at least one recurrence and not the number of recurrences in the individual was considered. The numbers of cases in the studies to be mentioned were small but the differences were statistically significant.

It was calculated that about half of the group would have at least one recurrence within the first year. This was apparently true whether the cases were primary or recurrent with the probability of relapse becoming greater as the number of previous attacks increased. Other data tended to confirm this figure. Recurrence was about equally frequent in vivax and falciparum malaria.

The following factors were thought to indicate almost certain relapse: A persistent parasitemia, of course; a continued enlarged spleen; a persistence of temperatures above 99.0°F. without other causes; or a tertian periodicity of maximum daily temperature even though within the normal range. These patients usually relapsed within a short time, often within a month.

It was noted that many patients with malaria had elevated serum bilirubin levels, probably due to blood destruction. These ranged from the normal of less than 0.5 mgm. to 1.3 mgm. per 100 cc. In contrast to those with normal values, patients with vivax malaria and a serum bilirubin above 0.5 mgm. after treatment had over twice as many recurrences during the period of follow-up.

Anemia due to blood destruction by the plasmodium is a typical part of malaria. Almost twice as many of the malaria patients who had hemoglobin below 90% of normal after treatment had recurrences than did those with higher values. In contrast to patients whose hemoglobin rose during treatment, those whose hemoglobin remained constant or fell were two and a half times as apt to relapse.

The elevated erythrocyte sedimentation rate of malaria often remained high after treatment but this was shown to be unrelated to relapse.

It has long been recognized that fatigue, exposure, or intercurrent disease would precipitate recurrent malaria. During a five-month period in the winter of 1943-1944, patients admitted to one hospital for infectious hepatitis or for primary atypical pneumonia had malaria about five or six times as frequently as did the group from which they came. Another condition common in the theatre at that time was trench foot due to prolonged exposure to wet cold. This did not precipitate malarial recurrences as such patients had co-incident malaria at about the same rate as the troops from which they came. This correlation was not made for other conditions but it was the clinical impression that severe wounds and exhaustion also precipitated recurrence of the disease.

We had malaria in the Mediterranean Theatre as had all armies there before us throughout history. The Germans used it as a weapon by destroying the malaria control devices, but, unlike wars in the past, malaria played only a minor role in this campaign.

Oral Administration of Penicillin—The oral administration of penicillin has been proved adequate by producing satisfactory therapeutic blood levels and excellent clinical results. Collen reports 12 cases of pneumococcic pneumonia which were treated with oral penicillin administered in dosage of 200,000 units initially followed by 100,000 units every two or three hours. Two grams of calcium carbonate were given with the penicillin. Therapeutic blood levels were established and maintained on this regimen and results were wholly satisfactory. Libby used a gelatin capsule containing 150 to 300 units per mg. of sodium and calcium salts of penicillin suspended in cottonseed oil. This gave therapeutic blood levels of .03 to .06 units per cc. Burke and his associates state that the penicillin must be protected from the destructive power of hydrochloric acid of the stomach and yet must be released and subsequently absorbed before it reaches the inhibitory influence of the Escherichia coli bacilli. He advocates administering two aluminum hydroxide tablets 30 minutes before one gelatin capsule (treated with 1-20 formaldehyde for five seconds and 70 per cent alcohol for five minutes) containing 100 units of penicillin. He obtained a rapid initial rise within the first half hour, with a therapeutic level still present four to five hours later. It was concluded that when the oral dose was two times or more greater than the parenteral dose, blood levels exceeded the parenteral medication blood levels. Welsh reports that penicillin blood levels may be prolonged by using aluminum hydroxide as a vehicle.

Keith and others report the successful treatment of throat infections by penicillin orally. Various methods produced and maintained effective blood levels.—*Faucett et al., California Medicine, Nov.* '46.

MALARIA IN THE PACIFIC

E. G. GIVHAN, M. D.
Birmingham, Alabama

It is with considerable temerity that I present a paper on malaria to this Association which has in its membership men who, although they may not have grown up with the disease literally, at least have made a good part of their reputations and fortunes treating it. The prime consideration which would justify this presentation, if at all, is the possibility that for the next few years malaria may be more of a problem in the United States than it has been in the recent past. During the last war many of our troops while fighting overseas were infected with malaria and a proportion of them have had recurrences of clinical malaria and parasitemia since returning to the States. These recurrences are continuing in troops who have been returned to civil life. In Alabama there was a steady and progressive decline in the number of cases of malaria reported from 1940 to 1944. In 1945 this trend was reversed to show an increase. In Jefferson County, where a breakdown the figures was available, eighty per cent of the cases reported in 1945 were in individuals who had contracted the infection overseas. In connection with this problem I would like to call attention to the fact that attacks of clinical malaria may develop in individuals who contracted the infection while overseas but did not develop clinical attacks at the time. Atabrine was generally used in malarious areas as a suppressive measure because of military necessity. The drug used in this fashion would in most instances prevent clinical attacks but not infection. This infection remains in the tissues and may appear as a clinical attack at varying intervals after the suppressive therapy is stopped. I cannot say positively how long the possibility of recurrence may persist, but I believe it may be for several years. Parenthetically, I might say that such recurrences are always due to infection with the *Plasmodium vivax* which relieves us of some of the dangerous clinical manifestations which would appear if the recurrences were due to the *Plasmodium falciparum.*

Another consideration which might justify this presentation is that of the possibility of local epidemics developing due to the presence of infected individuals in areas where the mosquito population is great enough to transmit the disease in epidemic proportions. The engineering division of the State Health Department reports that the *Anopheles quadrimaculatus,* which is for all practical purposes the sole vector of malaria found in Alabama, is prevalent and well distributed over the State. It is produced between the months of May and September. Mosquito control methods have greatly reduced its production in certain areas of the State, but there are localities where its production seems to have remained unchanged. To date I have been able to uncover only one report of an epidemic occurring in such circumstances and it was of small proportions. I believe that the possibility of such epidemics occurring in the future is still present.

The cases of malaria discussed in this paper were largely contracted in the Guadalcanal campaign. It was in this campaign that the greatest infection of Navy and Marine Corps personnel occurred. This was occasioned by the fact that the campaign was fought in an area which was highly infected and under circumstances which made adequate protection difficult. Later the infections were continued due to the practice of employing natives as manual laborers and quartering them in close proximity to our troops. The factors of heavily infected human hosts and plentiful mosquito vectors were ideal for spread of the disease. The poor economy of employing laborers for one pound a month (approximately $3.25) and disabling troops who cost $50 and up finally became apparent and it was discontinued. The malaria which was encountered was either the benign tertian due to the *Plasmodium vivax* or the malignant tertian due to the *Plasmodium falciparum.* Early in the campaign about forty percent of the cases were due to *Plasmodium falciparum* but with the more effective use of atabrine suppression this percentage was gradually reduced and these cases became quite infre-

Read before the Association in annual session, Birmingham, April 16, 1946, as a part of a Symposium on War Medicine.

quent. The clinical manifestations were protean and in the falciparum infection often severe. Suddenly appearing cerebral manifestations, profound gastrointestinal symptoms, and respiratory symptoms suggesting pneumonia were not uncommon. I saw no cases of black water fever. Although there was a general unawareness on the part of Americans of the varied manifestations of malarial infection it is doubtful if the cases differed greatly from malaria as it has occurred in the United States in the past. If we had seen malaria in the States in the same concentration as it was seen in the Pacific, I believe that we would have seen the same features. One factor which did give great concern was the tendency for clinical attacks to recur. In this respect the disease as seen in the Pacific seemed to differ from the types we have had in the United States. This difference may have seemed more apparent than real due to the large number of cases seen in a short period of time. Certainly the cases of vivax malaria which develop in the United States are not free from recurrences but I do not believe it is common for these cases to recur regularly at a 60-day interval as was common in the Pacific. Several explanations have been offered for this prevalence of recurrences. Multiple infections, lowered resistance due to dietary restrictions, and poor adaptation to tropical climate have been suggested, but it still seems likely that there was a difference in the strain of parasite which accounted for the many recurrences. I repeat that these recurrences were due to infection with *Plasmodium vivax*.

This problem of recurrences was serious and one about which our medical officers knew the least. The vast majority of doctors from the United States entered the tropics with the idea that malaria is readily curable with quinine or allied drugs, incidentally a concept in which the late great Sir William Osler seems to have concurred. Our professional colleagues in the regular services who had usually had one or more tours of tropical duty did not help to correct this misconception. They usually recognized the possibility of recurrences but each one clung to the idea that if a certain schedule or combination of treatment, which was usually of his own invention, were followed the disease could be promptly cured. All forms and combinations of treatment were tried but the recurrences persisted in a certain percent of cases. Medical opinion finally crystallized on the concept that present day antimalarial drugs will control clinical attacks and temporarily clear parasitemia but there is *no* drug which will eradicate or cure malaria. The working hypothesis presently used to account for the features of malaria is that after the mosquito injects sporozoites into man, certain forms of the parasite enter the tissues and are harbored there. At intervals the tissue forms produce erythrocytic forms which enter the blood stream to multiply and produce clinical attacks. Antimalarial drugs will rid the blood of the erythrocytic forms and terminate clinical attacks but will not destroy the tissue forms. To explain the final disappearance of clinical attacks it has been postulated that the tissue forms are finally exhausted or are destroyed by increasing immunity in the host. The topic of acquired immunity has been subjected to considerable study and question. It is believed by some that repeated untreated relapses favor the development of immunity which eventually eradicates the disease. Following this thought they would permit relapses to run their natural course. However it has not been proven that this plan significantly modifies the number or frequency of subsequent relapses, and untreated relapses are severely debilitating to the individual. Needless to say such a plan of management would not be popular with a patient. The best plan of treatment at this time seems to be to treat the patient vigorously for a week or ten days when he has a relapse then stop antimalarial drugs and concentrate on building up his general physical condition and hope that the recent relapse was his last.

In the past 4 years a tremendous amount of research and experimentation in the chemotherapy of malaria has been carried out. One of the most important results of this research has been the development of better methods for the use of atabrine in the suppression and treatment of the disease and the demonstration that this compound is superior to quinine.[1] As a suppressive it

1. Statement of the Board for the Coordination of Malarial Studies, J. A. M. A. 125: 977, 1944.

is far superior to quinine since it is impossible to give enough quinine to prevent recurrences of clinical attacks and parasitemia without signs of cinchonism. Atabrine given in a dose of 1½ grains daily for two weeks before entering an infected area and continued during the period of exposure will effectively suppress most clinical attacks. It was found that during periods of great stress or fatigue that some cases would break through at this level and it was the rule to give an increased dose to troops for 2 or 3 days before entering combat. It was also found that this scheme of treatment would prevent attacks of malignant tertian malaria due to *Plasmodium falciparum* and when the troops were removed from infected areas and suppression stopped attacks of this type did not recur. This lead to the assumption that atabrine "cures" or prevents malignant tertian malaria. The same was not true of vivax infections. They appeared after suppression was stopped and have continued to appear. Early in our experience the only untoward reaction from suppressive therapy was the yellow discoloration of the skin. Later cases of lichenoid dermatitis, which seemed to be due to sensitivity to atabrine, appeared. I have been told that this was a serious problem in other theaters. but in the South Pacific it was of no consequence. The condition gradually clears when the drug is withdrawn. For treatment of clinical attacks atabrine is also the drug of choice. The fact that it does not act quite so quickly as quinine has been overcome by a schedule of dosage which rapidly saturates the blood. The scheme of dosage presently recommended is grains 3 every 6 hours for 5 doses followed by grains 1½ three times daily for 6 days. In cases with falciparum infection the patient should be continued on the suppressive dose of 1½ grains daily for 6 weeks to prevent recurrences and effect the so called "cure." The above schedule of dosage is within the limits of therapeutic safety, but if it is carried greatly beyond this, toxic signs will appear. These are signs of cerebral irritation such as irritability, restlessness, hallucinations, and delusions. For patients who are nauseated and cannot retain medication by mouth, atabrine can be given intramuscularly. In cases in coma or showing signs of impending coma, quinine dihydrochloride given slowly intravenously is still recommended. The possibility of fatal termination in such cases makes it imperative that we use the most rapidly acting drug available. Our experience with plasmochin was most unfavorable and it was discontinued. Finally, the panel on synthesis for antimalarial drugs reports that a new compound. 7-chloro-4 (4-diethylamino-1-methylbutylamino) quinoline is more effective than atabrine.[2] It will suppress attacks when administered no more frequently than once a week, it will cause an abrupt termination of attacks of vivax malaria, and will cure falciparum malaria when administered for only one day, and it does not discolor the skin. Unfortunately this drug is not yet available.

2. Wartime Research in Malaria, Science 103: 8 (Jan. 4) '46.

Cancer of the Colon—Much has been written regarding the need for early diagnosis of cancer of the colon, but it seems worthy to stress it again. In a sense the disease is a medical problem until it is diagnosed and then it becomes the domain of the surgeon. Irrespective of the location of any cancer it becomes the responsibility of every physician to develop a "cancer awareness" in order to detect the lesions early. It is an academic question whether cancer of the colon is ever diagnosed early. More likely it is the complications of the tumor mass rather than the growths themselves which produce the symptoms. When one considers how many cases there are in which the diagnosis is made late, it is heartening to learn that in one series of 503 cases cited by Lahey 83.5 per cent of the patients could be operated on and 46.3 per cent appear now, after 5 years, to be cured.

During the earlier stages of its development cancer of the colon produces but mild and vague symptoms, but these can be signposts awaiting recognition. To understand the symptom-producing mechanism one must have a knowledge of the anatomic, physiologic and pathologic difference between the right and left side of the colon. Tumors arising in the relatively thin cecal wall are usually fungoid medullary carcinomas growing into the lumen and capable of attaining considerable size before producing signs of obstruction. Also contained in the cecum are liquid fecal material and highly toxic bacteria. The ulcerating growths will ooze blood and give rise to a rather profound anemia, which is the most characteristic sign of malignancy in this area. By comparison, the descending colon and sigmoid segment have a relatively thick muscular wall and small lumen. The feces are firm, and the tumors may be ulcerating, cicatrizing or "napkin-ring" scirrhous carcinomas that constrict the lumen and cause obstruction.—*Geier, M. Ann. District of Columbia, Dec.* '46.

THE TUBERCULOSIS CONTROL PROGRAM FOR THE STATE OF ALABAMA

WITH SPECIAL EMPHASIS ON CASE-FINDING

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Although tuberculosis has been recognized as a disease entity since the early history of man, it was not until the latter part of the last century that Koch identified the organism which is responsible for the propagation of this disease. Since that important discovery, no drug has been found which will cure the disease. Of late we are receiving promising reports of the efficacy of streptomycin, one of the newer antibiotics, in the treatment of early exudative tuberculosis. It should be pointed out, however, that, should a more effective medicinal agent be forthcoming, it will indicate the need for even better control programs rather than obviate what has been organized in the past.

Tuberculosis is a disease of international scope. We know that the prewar tuberculosis mortality rate in China was estimated at 400 per 100,000; 10,000 Poles are dying of tuberculosis each month; and that the tuberculosis death rate in Britain has risen more than 10 per cent as compared with prewar figures. Tuberculosis is the most important public health problem in Europe today, second only to the problem of starvation.

Here in the United States we have become rather complacent as a result of our gradual but steady decline in tuberculosis mortality rates. However, in 1944 tuberculosis alone was responsible for the death of 54,731 Americans. Although this disease ranks number seven as a cause of death in all age groups, it is actually the number one killer in the age group 15-45, and second only to heart disease among non-whites in all age groups. Tuberculosis, a disease contracted under perfectly innocent circumstances, kills thousands of the most productive citizens of contemporary society. There are certain indications that the war years, attended by long hours of work—some under adverse working conditions—inadequate food and clothing, and horribly crowded living conditions, have served to elevate tuberculosis death rates in certain urban areas. These conditions are not encouraging, for, if history can be expected to repeat itself, this postwar period too will be characterized by increases in tuberculosis mortality rates. This fact indicates again the need for concerted action in carrying out a strong antituberculosis campaign.

Here in Alabama our record has not been an enviable one. In 1944, 1,271 tuberculosis deaths were reported, to give us a mortality rate of 43.9. This places us twelfth from the bottom as compared to other states in the country.

In order to cope with our present problem, and in order to elevate Alabama to its rightful place among the more progressive states, we have promulgated a tuberculosis program, which, with the cooperation of all, is bound to succeed. We realize that the success of the program rests largely with the private practitioner and his liaison with his County Health Department. All tuberculosis cases must be reported to the Health Department, contacts must be investigated, properly followed, and public health home-nursing visits should be welcomed.

The first step in a well organized tuberculosis control program is case-finding. In designing our case-finding program, we have drawn from the most up-to-date scientific material and from the newer public health methods which have been tried and found to be true.

It has long been recognized that the x-ray is the best means of detecting pulmonary tuberculosis. However, it has been the experience of all tuberculosis workers that persons presenting themselves because of symptoms are found to have extensive pulmonary involvement when finally diagnosed. In such cases, hospitalization is prolonged and costly; the results of treatment are dubious; rehabilitation may be impossi-

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ble, even with arrest of the disease; the cost to society to support dependents for long periods of time is staggering; and, of paramount public health significance, this person has already exposed a number of contacts to his disease.

It, therefore, became obvious to tuberculosis workers that we must devise a means of x-raying large groups of supposedly well persons at a low per capita cost in order to detect early, asymptomatic cases of tuberculosis. It pays to concentrate on the detection of early cases of pulmonary tuberculosis for the following reasons:

(1) The period of hospitalization is short compared to that for advanced cases.

(2) The per capita cost for this period of hospitalization would be less.

(3) Results would be better.

(4) The number of persons who could be treated for annum per sanatorium bed would be increased.

(5) Rehabilitation, where indicated, could be carried out with relative ease.

(6) The cost to society to support adequately dependents of the hospitalized bread-winner would be diminished.

(7) With good sanatorium results the common impression that tuberculosis is an invariably lethal disease and its social stigma would disappear.

(8) And most important from the public health standpoint, this person with a lesion of minimal extent has not had an opportunity to infect a horde of contacts—known and unknown—during the period of latent infection.

Today we have the answer to our case-finding problems in a radiograhic technique called photofluorography. With this new method we are in a position to x-ray hundreds of persons a day at a surprisingly low per capita cost.

The Tuberculosis Control Division of the U. S. Public Health Service has had an extensive experience during the past several years in the examination of large industrial groups of supposedly well persons in various parts of the country. They report that the over-all incidence of reinfection tuberculosis among more than one million industrial workers is between 1 to 1.5 per cent, approximately 3 cases for every 200 persons x-rayed. Of those persons found to have lesions, approximately 25 per cent were found to be infectious. Further analysis of their findings indicates that more than 50 per cent of the cases uncovered were minimal in extent.

During the past several years we have had here in Alabama on loan from the U. S. Public Health Service one such unit. Our findings, too, have been interesting. Our over-all incidence of reinfection tuberculosis in occupational groups is 1.7 per cent, somewhat in excess of the findings of the U. S. Public Health Service. However, we have not received sufficient bacteriological follow-up on these cases to give us a clear picture as to activity. It is noteworthy that this single case-finding unit, operating at the average rate of 750 examinations per week during the first nine months of 1945, has uncovered approximately four hundred more new cases of tuberculosis than we have sanatorium beds in Alabama.

We now have on order two additional mobile case-finding units which we hope to have in operation within the next several months. Although it is our ultimate aim to provide all persons with periodic x-ray examinations, with the present limitation of equipment, we intend to direct the activities of these units in areas where we may achieve a maximum yield of cases at the lowest cost per case found. We shall therefore concentrate at the outset upon groups, the average of which will be between 20-50 years. This plan automatically eliminates elementary and some high school students. In the past we have x-rayed several thousand such young persons. Our findings do not warrant a continuation of this type of program, particularly when there is a great need for much work to be done in the older age groups.

How are these examinations conducted? Persons are first examined on small film. Anyone found to have a suspicious or a definite lesion is recalled for a diagnostic 14 x 17 film. He is then interviewed. The 14 x 17 film, and a copy of a record containing the household roster, epidemiologic information, and our recommendations are then sent to the private physician of this person's choice. A copy of the record is also forwarded to the County Health Department.

It then becomes the responsibility of the private physician to arrange for further investigation, which must include sputum

(cultures and animal inoculation may also be indicated) and periodic x-ray examinations. The stethoscope is definitely not the means of determining activity, spread or regression of the disease process. Neither can temperature records be relied upon. This statement does not imply that physical examinations are to be discredited, but is to emphasize that the laboratory and periodic x-ray examinations must be used more extensively than they have been used in the past, if we are to give our patients the best possible medical care. For several years now the Division of Tuberculosis Control of the State Health Department has offered private physicians a free chest x-ray consultation service. We invite the physicians in Alabama to avail themselves of this unusual service in order that they may better serve their patients and the community at large.

From inception of hostilities, the Armed Services required a chest x-ray examination on each inductee. The films on persons rejected because of pulmonary pathology were forwarded to our Division for review and recommendations. This information was forwarded in turn to the various County Health Departments. We know that hundreds of young men in Alabama were first found to have tuberculosis as a result of these x-ray examinations, but that in some instances follow-up investigation was inadequate. At present we are carrying out extensive follow-up studies on this group to be certain that recommendations have been carried out.

Since 1931, the Alabama State Department of Health has provided most of our counties with periodic x-ray clinics wherein known cases, suspects, contacts, and referrals by private physicians could be x-rayed for a definite diagnosis. Although this has been an invaluable service in the past, we have reorganized the activities in these clinics in such a manner as to achieve a maximum benefit. Upon reviewing thousands of records on persons who have been examined in these clinics in the past, it became obvious that a large number of tuberculosis contacts had not had sufficient x-ray follow-up. On sending out lists of these lapsed contacts (whose last x-ray was negative) to some of our counties with the request for further information, we have learned that in the interim a significant percentage have died of pulmonary tuberculosis; and others, following recent x-ray examination, are now known to have the disease. On x-raying persons from this group of lapsed contact who are presumably well, we have found as high as 14 per cent in some counties to have developed radiographically demonstrable lesions.

Realizing that tuberculosis is a disease characterized by a prolonged and variable latent period, and that it may cause "family epidemics," we had a meeting of the tuberculosis workers of Alabama to draw up a schedule for following contacts of known cases of tuberculosis over a period of time necessary to protect them from the ravages of the disease. We are now adhering to this schedule in our clinic, and we recommend that private physicians do likewise. (See Figure I) Our clinic nurses have been doing educational work among this large important group of persons indicating to them the wisdom and necessity for such x-ray follow-up over a period of years.

FIG. I

Routine for Studying Tuberculosis Contacts

I. WHERE CONTACT IS NOT BROKEN:

A. Children up to and including 11 years of age at the time of the x-ray examination.

1. No infant under 1 year of age will be x-rayed.

2. (a) No child in this age group will be x-rayed unless previously *tuberculin-tested and positive.*

(b) If tuberculin negative on first testing, this should be repeated annually until positive. The child should then be x-rayed.

3. If the first x-ray is negative, no further examination will be made until the child becomes 12 years of age. Thereafter to be followed as designated under B.

B. All persons older than 12 years of age at the time of the first examinations are to be followed with annual x-ray examinations.

II. WHERE CONTACT IS BROKEN:

A. Children up to and including 11 years of age.

1. To be followed as designated under A 1, 2, and 3. Then to be followed until 20 years of age with annual x-rays.

B. Contacts older than 12 but under 15 years of age when contact is broken will be followed until 20 with annual x-rays.

C. Contacts older than 15 but less than 25 years of age when contact is broken will be followed with annual x-rays until 25 years of age. (Each of these contacts must have at least three x-ray examinations; e.g., those persons 23, 24, and 25 years of age.)

D. Adults older than 25 when contact is broken will be followed for 2 years. In the event the first film is made within a few months after contact is broken, two more annual x-rays are indicated.

III. *At times symptoms or suspicions may warrant reexamination of a patient previously diagnosed as negative at an earlier date than designated.*

IV. *Suspicious, positive, and other unusual cases are to be reexamined at the discretion of the interpreter.*

V. *Contingent upon extraordinary circumstances, the interpreter may deviate in isolated cases from the above schedule.*

It is true all over the country that Negro tuberculosis death rates are exceedingly high. Here in Alabama they have been (on an average) approximately three times as great as compared to the rates for whites during the past several years. Yet, interestingly enough, x-ray examinations of large groups of supposedly well persons in other states disclose a higher incidence of tuberculosis among whites than among colored groups. These findings may seem paradoxical on the surface, and yet there are explanations. The excellent studies of Graham, Putnam and Auston help clarify this discrepancy. They found that the mean duration of the disease is approximately three times as long among known white cases as among Negro cases. The fact that the disease process is more rapid and concomitant symptomatology more incapacitating among non-white groups tends to eliminate them from supposedly well industrial groups with greater regularity than one might expect to be the case among white groups.

Consequently, if the examination of large groups of supposedly well persons fails to uncover significant numbers of cases among Negroes, it becomes obvious that we must search elsewhere for these cases. Proper investigation of contacts of known cases over a period of years provides this medium. Our experience on re-x-raying lapsed contact groups bear out this impression.

In the past, tuberculin-testing surveys were carried out extensively. Prior to the advent of means for x-raying persons at a low per capita cost, this type of investigation did have a place in a case-finding program. However, with mass radiography now available, it becomes an uneconomical method in finding early cases of tuberculosis. The State Health Department has adopted the attitude that more productive work and better results can be obtained by carrying out vigorously the type of program which has been outlined above without accessory tuberculin-testing projects, except as indicated for contacts of a certain age group.

In summary, from the standpoint of case-finding, we feel that we must carry out an extensive program among large groups of supposedly well persons, and with it we must carry out a vigorous contact follow-up program.

To find early cases of pulmonary tuberculosis and not to have facilities for the treatment of these cases is to accomplish little in the control and ultimate eradication of the disease. The National Tuberculosis Association has set up a standard of two and one-half sanatorium beds for each annual tuberculosis death. Accepting this figure, we should have approximately 3,000 beds in Alabama. At present we have some 550 beds. In order to make available a number of beds at the earliest possible date, the State Planning Board drew up a program to provide for 1.5 beds per annual death, or approximately 1900 beds. The State has been divided into seven sanatorium districts, comprised of a varying number of counties, depending upon the extent of the problem. During the past legislative session, the Henderson-Smith-Simpson-Harris-Stewart Bill was passed, appropriating $945,000.00 from the State for the construction of sanatoria. Of this amount, the State Building Commission has ear-marked $500,000.00 as being available for immediate construction. This will pay for only part of the construction costs. The balance must be provided on a pro rata basis by the various counties in each sanatorium district. It is hoped that the prompt passage of the Hill-Burton Bill will provide the counties in the various districts with sufficient funds to break ground for the construction of modern tuberculosis hospitals—*not fresh air camps*—within a reasonably short time.

In addition, there is a great need for pneumothorax refill stations at strategic points throughout the State, thus making it possible for out-patients to receive treatment without traveling hundreds of miles at frequent intervals. It is hoped that our newly organized four-year Medical School will give specific training in the treatment of

pulmonary tuberculosis to its students and will begin to rotate interns and residents through the sanatoria in order to prepare them to take their place in the rapidly growing group of physicians in Alabama who are joining hands in the conquest of tuberculosis.

Rehabilitation is another very important phase of tuberculosis control programs. In 1944, Alabama rehabilitated only 21 tuberculous persons. There is a great need for unlimited expansion in this sphere of activities. We all realize that certain occupations are hazardous to the arrested case of tuberculosis. However, unless we physicians consider carefully the occupation of each and every arrested case of pulmonary tuberculosis, we shall lose the benefits accrued by finding early cases and treating them adequately. To allow an arrested case to become reactivated because of endangering working conditions is to render this patient economically and socially useless, as well as to make for the further propagation of the disease.

The Department of Education has a separate Division of Vocational Rehabilitation, with representatives in various parts of the State. We urge all physicians to make their acquaintance and to discuss with them the problems of tuberculous patients. There are countless possibilities open to many persons who could benefit themselves, as well as society in general, as a result of practical educational opportunities made available by this Department.

The question of financial security for the dependents of the hospitalized bread-winner has not received ample attention. It is obvious that prolonged hospitalization brings about overwhelming financial burdens on dependents, particularly upon persons in low-income groups who have no appreciable monetary reserve. If society will not provide such funds philanthropically, then it must do so in self-protection. It is my opinion that funds should be made available by the Legislature for this purpose at an early date, and these funds should be administered through the Department of Public Welfare.

Tuberculosis is a ubiquitous disease, and in these days of great scientific advancement we must direct our thinking to social matters. A case of active pulmonary tuberculosis in one county can no longer be regarded as a circumscribed, provincial problem, for this person shops and visits in surrounding counties, thus exposing many persons there to his infection. Consequently, by the failure of any county to fully discharge its obligations in the management of an active case of pulmonary tuberculosis, all counties suffer a reversal in their efforts to cope with the disease. Every county should have sufficient funds available for the treatment of all cases of tuberculosis, and for the complete isolation of active, but incurable, cases for as long as is necessary to prevent the further spread of the disease. This is a civic responsibility, which must be met—and sooner than later.

Malaria—The prodromal symptoms of malaria are lassitude, weakness, yawning, bone aches, headaches, back aches, loss of appetite and vomiting. The so-called paroxysm begins with a cold stage or actual chill. Vomiting may be very distressing. The face is pinched, and there is goose flesh all over the body, which may even become blue or cyanotic. The temperature is several degrees over normal. Convulsions occur in children as a rule. The first stage actually lasts about an hour.

The second or so-called hot stage follows. There is a wave of warmth, the patients complaining of intense heat. The face is flushed, the pulse rapid and full, the headache intense and the vomiting distressing. The skin has a burning feeling, and the temperature is 104 to 106 F. The duration of this stage is from three to four hours.

The third and last stage is the sweating stage. The patient perspires freely and is absolutely wet. As the headaches and vomiting subside, he feels relieved, gets up from the bed and walks. The temperature is now subnormal, and herpes appears around the lips.

All these stages last a total of from six to ten hours. The spleen is enlarged during the paroxysm, but may not be enlarged in acute malaria. It is usually enlarged after several paroxysms and may be detected by percussion. It must be two and a half times larger than normal to be detectable. This organ must be carefully protected from trauma during this period because of the possibility of rupture necessitating immediate splenectomy.

The fever has a tendency to reach its peak before noon and usually in the early morning hours. When the causative agent is P. ovale, the peak may, however, occur in the early afternoon or evening.

Of course double or triple infections may produce all kinds of bizarre symptoms. An interesting feature is the fact that when two peaks of temperature occur in twenty-four hours, this phenomenon can only be due to the following: (1) visceral leishmaniasis or kala-azar, (2) P. falciparum or (3) gonorrheal subacute endocarditis.—*Anderson, J. Florida M. A., Dec. '46.*

PENICILLIN IN THE TREATMENT OF SYPHILIS

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At the present time considerable confusion exists as to the efficacy and dosage of penicillin used in the treatment of syphilis, largely due to recent editorial comment concerning changes in the manufacture of penicillin. With the purification of the product, various fractions of penicillin have been identified and it appears likely that certain of these fractions are more desirable for their antisyphilitic action than others. It is probable that changes in the methods of the production of this antibiotic in the future will modify certain of the results contained in this report, but the information given is basic, and the general principles and results of treatment will remain essentially unchanged. An official statement[1] issued a short time ago clarifies some of the current misunderstanding relative to the type of penicillin now being produced. The following information is based upon data presented at a conference of penicillin investigators held in Washington on February 7th and 8th, 1946 by the National Institute of Health and the National Research Council, and outlines the present knowledge of the usefulness of penicillin in the treatment of syphilis. It is the result of the combined experience of 43 cooperating military, public health, and civilian clinics, which reported upon their results in the treatment of 11,589 patients with early syphilis, and in addition varying numbers of late and complicated forms of syphilis. The number of cases treated is fairly large, but this report is not a final evaluation of its efficacy, due to the length of time necessary to complete the task of determining the eventual outcome of the patient with syphilis. The follow-up studies herein reported extend over a period of less than two years in most instances, whereas it is known that the course of syphilis requires a much longer time to develop late and serious manifestations of the disease.

The cooperative study of penicillin in the treatment of syphilis arose out of an urgent need for a rapid and safe method of treating the disease in the armed forces. This major research project was undertaken to obtain in the shortest possible time data concerning (1) the total dose of penicillin required, (2) the duration of treatment, (3) the size of the individual dose, and (4) the interval between doses. Information was also desired relative to reactions to the drug, the combination of penicillin with other spirocheticides, and combined with fever therapy. Laboratory and clinical studies upon other diseases indicated that sodium penicillin in aqueous solution administered intramuscularly was the best method of utilizing penicillin, and all major studies reported herein have used the drug in this manner.

Most of the patients reported upon were selected because they had early syphilis for the obvious reasons of the infectiousness of the early lesions, the ready recognition of the lesions, and the ease with which the course of the clinical manifestations could be observed. Other forms of syphilis were added to the investigations as penicillin became readily available in quantity, and some data concerning these problems are also presented herewith.

EARLY SYPHILIS

There were 11,589 patients with early syphilis in the primary or secondary stage who were treated with sodium penicillin in aqueous solution alone, given intramuscularly, and given without any additional treatment. The following information is obtained from the combined data of all participating clinics.

A. *Dosage and Duration of Treatment*

1. *Total Dose Required*: Five (5) different total dosage schedules were used, varying between 60,000 units and 2,400,000 units of penicillin. The cumulative failure rate ranged from 62% for the 60,000 unit schedule to 15% for the 2,400,000 unit schedule. The latter figure compares very favorably with presently accepted failure rates for other chemotherapeutic agents now in use.

2. *Duration of Treatment*: Schedules requiring from four (4) to fifteen (15) days duration for completion of therapy were

From the Birmingham Medical and Surgical Clinic.

1. The Changing Character of Commercial Penicillin: A Joint Statement, J. A. M. A. 131: 271 (May 25) '46.

used, the total dosage being the same as described in the above paragraph. The most effective time for completion of treatment, as measured by cumulative failure rates, was about eight (8) days. However, an insufficient number of cases treated with a fifteen-day schedule made comparison between eight-day and longer time schedules difficult. In comparable animal study, it is significant that better results were obtained when longer periods of therapy were used.

3. *Number of Injections and Size of the Individual Dose*: Schedules of penicillin treatment were used varying the number of injections from 30 to 60 and given in from four to eight days. Statistical analysis did not reveal any significant difference between the smaller and larger number of injections given over the same total duration with the same total dosage. It is again of interest to note that in comparable animal experimentation the greater the number of doses given over a proportionately longer interval of time, the more satisfactory the results as measured by clinical cure. In the present reports of patients treated with a total dosage of 2,400,000 units of penicillin, individual doses of 40,000 units were slightly more effective than were individual doses of 80,000 units. The latter dose lengthened the interval between doses from 3 to 6 hours.

4. *Interval Between Doses*: When a total dosage of 1,200,000 units was given intramuscularly, schedules requiring a 3-hour interval between doses were slightly more effective than schedules using a 6-hour interval between doses, as measured by the cumulative failure rate. Thus, more injections rather than fewer were needed over a given period of total treatment time, and this is in accord with the results of animal experimentation.

B. *Results of Treatment*

The overall percentage of satisfactory progress of treated patients according to one large series of 1,107 cases is as follows:

Sero-negative primary syphilis . . 94.7% progress satisfactory
Sero-positive primary syphilis . 90.5% progress satisfactory
Secondary syphilis .... 82.6% progress satisfactory

In further analysis of the interval between onset and the time the individual was begun on penicillin therapy, it was evident that in patients treated within 7 days of onset of the disease the cumulative failure rate was only 14% after 11 months of follow-up studies, whereas those treated as late as 52 days after onset of the disease revealed a cumulative failure rate of 32%. This is unmistakable evidence for the need for prompt treatment in syphilis.

The clinical lesions of early syphilis healed rapidly with penicillin therapy. Primary changes showed absence of spirochetes upon darkfield examination in from 5 to 12 hours, which is as rapid as with any previously accepted form of antisyphilitic therapy. The actual disappearance of the lesions depended upon the degree of induration and initial size, but all lesions healed promptly and compared favorably with any previously used form of chemotherapy.

Study indicates that penicillin exerts a profound influence upon the serologic test in syphilis, an effect which is not unlike the results obtained by the best known presently used chemotherapeutic agents for syphilis. In serologic positive primary and secondary syphilis, the reversal of blood serologic tests to negative was directly proportionate to the total dosage of penicillin employed. In those schedules using 60,000 units total dose of penicillin only 30% were negative at the end of 11 months, whereas in the total dose schedules using 1,200,000 units the reversal to negative was 59%.

C. *Comment Upon Failures*

Failures were adjudged if the patient revealed the darkfield positive lesions of mucocutaneous relapse; if the serologic positive patient did not become sero-negative in 6 months; or if serologic relapse occurred as evidenced by return from negative to positive serologic test; or even by evidence of probable reinfection. The studies show no significantly greater number of failures in colored patients as compared with white patients. The failure rate was slightly higher in female than male patients. It is important to note that when treatment failures in primary syphilis were retreated with the same total dosage and length of time, the cumulative failure rate for the retreated patients was 37% as against 17% for those patients who had untreated secondary syphilis. This fact is evidence that indeterminate factors in the reaction of the host to the disease play an important part in the eventual outcome after treatment. Summarizing the gen-

eral data concerning failures, it is evident that in spite of the rapid and short course of penicillin therapy for syphilis, the percentage of failures compares very favorably with any previously used form of antisyphilitic treatment.

OTHER FORMS OF SYPHILIS

A. *Syphilis of the Central Nervous System*

Penicillin exerts a favorable influence over both clinical and serologic aspects of syphilis of the central nervous system. The earliest signs of improvement are seen in the examination of the spinal fluid, with the cell count and total proteins first to show a trend toward normal. In a series of 197 cases followed over an average period of about one year, the following table is illustrative:

Type of Neurosyphilis	*Percent Improved*
Meningovascular	72
Asymptomatic	70
Tabes dorsalis	86
Taboparesis	58
Paresis	62

While the number of congenital neurosyphilis cases was small, 13 out 16 cases were benefited by penicillin treatment. Improvement in all cases was judged by the changes found upon repeated examinations of the spinal fluid, and it is especially notable that only 6 patients in the entire series studied were worse. Evaluation of clinical improvement is more difficult, clouded as it may be with day to day changes in subjective symptoms. However, 65% of paretics, 52% of taboparetics, 74% of tabetics, and 63% of meningovascular neurosyphilis cases noted clinical improvement. Considering the seriousness of the type of syphilitic involvement, these reports are excellent compared to other older forms of therapy. Results of treatment in the gastric crises of tabes, in eighth nerve deafness, or in Charcot joints were poor. The blood serologic tests examined from the same patients with neurosyphilis reported above revealed no comparable percentage of improvement, and in those cases with normal spinal fluid examinations after treatment only 30% had normal blood serologic tests. It is well known, however, that there is no correlation between the blood and spinal fluid serologic reactions, and that a positive spinal fluid serologic test may often exist with negative serologic tests for syphilis on the blood. The disturbance in vision and changes upon ophthalmoscopic examination in patients with primary optic atrophy were studied in 60 patients treated with penicillin. Results were indeterminate and there was no correlation between improvement of serologic tests on the blood and spinal fluid with improvement in vision. Whereas there was no improvement in vision, 75% of such patients revealed much improvement by spinal fluid analysis. It may be stated that penicillin treatment in early optic atrophy showed more improvement than in late cases, but that despite improvement by serologic tests the impaired vision of some patients steadily grew worse.

B. *Syphilis in Pregnancy*

One hundred eighteen (118) pregnancies in 114 women with early infectious syphilis, some women having completed two pregnancies within the period of observation, were studied after penicillin treatment by two participating clinics, with a successful outcome in 97%. Spontaneous termination of pregnancy in these patients resulted in miscarriage or abortions in three patients, or 2.5%, which is even below the expected rate in nonsyphilitic pregnant women. One infant was born with syphilis, (0.8%), and this infant was delivered of a mother treated in the 7th month of pregnancy, and who subsequently developed an infectious relapse shortly before delivery. When one considers that nearly all infants born of untreated mothers with early syphilis are expected to be infected by syphilis, this is truly remarkable evidence of the effectiveness of penicillin in preventing the occurrence of congenital syphilis. With careful studies revealing no signs of toxicity of penicillin for mother or child, it is inescapable that penicillin is the present "treatment of choice" in the management of the syphilitic pregnant woman.

C. *Penicillin in Congenital Syphilis*

Reports of 191 patients with early congenital syphilis treated with penicillin alone, administered in aqueous solution and given intramuscularly in doses varying from 20,000 units to 80,000 units per kilogram of body weight for a total of 60 injections given every three hours, indicate the treatment is at least as effecive as any other known form of antisyphilitic therapy. There were 2.6% relapses, either clinical or serologic.

Twenty-four infants died, a total of 12.6%, which compares well with results of standard routine chemotherapy. All the deaths could not be attributed to syphilis. Serologically there was steady progress toward normal in most cases, and there was also significant improvement in abnormalities of the spinal fluid found prior to treatment. Results appeared to be better in infants receiving 40,000 units or more per kilo of body weight than in those given less.

A frequent distressing complication of late congenital syphilis is interstitial keratitis, and of the studies of this condition little more can be said other than that penicillin given in doses of from 1,200,000 to 2,400,000 units promises as much improvement as does any other form of therapy now in use. It is again noted that the earlier the treatment is given the better the eventual outcome, and that penicillin cannot restore lost eyesight so often seen in late cases of interstitial keratitis.

PENICILLIN COMBINED WITH FEVER OR HEAVY METALS

A. *Penicillin plus Fever Therapy*

Seventy patients which were followed for a year or more and which were treated with penicillin and fever of malarial or fever cabinet sources revealed improvement in 57%. All of these cases were syphilis of the central nervous system, and when compared with a similar series treated by fever and standard chemotherapy showed a very favorable penicillin fever result. Cases of early syphilis treated by the fever-penicillin schedules also indicated that this form of treatment was effecive in this stage of the disease.

B. *Penicillin plus Bismuth and/or Arsenic*

A number of patients were treated with penicillin given every 3 hours for a total of 1,200,000 units and who were in addition given 320 mgms. of mapharsen, 0.04 gms. daily for 8 days, and/or five doses of 0.2 grams of bismuth subsalicylate intramuscularly every other day. The number of cases is small and the duration of the follow-up short, but indications are that the use of small amounts of either arsenic or bismuth with penicillin is additive, and that such combinations are more effective than either used alone. In a small series of patients using only 600,000 units but in addition 320 mgms. of mapharsen over an eight-day period, it was found that this amount of treatment was about as effective as 1,200,000 units of penicillin given alone, or that the addition of small amounts of heavy metals to penicillin made the treatment several times as effective as when penicillin was used alone.

C. *Penicillin in Peanut Oil-Beeswax Solution*

The rapidity with which aqueous sodium penicillin is excreted from the body necessitates frequent injections given day and night. This inconvenient form of administration, necessitating hospitalization, has spurred investigators to discover some form of the drug which will have a delayed and more prolonged action than heretofore has been available. Calcium penicillin in peanut oil-beeswax solution has been found to supply this need, and is at present in the process of evaluation. From preliminary reports it appears that one injection of 600,000 units of penicillin peanut oil-beeswax solution, or two injections of 300,000 units, daily, results in a sustained level of penicillin in the blood sufficient for acceptable therapy, over a period of 24 hours. If this investigation is substantiated by further observation, it may be found to be a means of treating syphilis with penicillin on an ambulatory basis.

REACTIONS TO PENICILLIN TREATMENT

A. *Reactions to the Drug, Penicillin*

Penicillin used alone did not produce any serious reactions of any kind, and the few reactions that were seen were not of sufficient severity to discontinue the use of the penicillin treatment. Urticaria was the most common form of reaction noted, and this was noted in only 14 cases of the entire series of early syphilis treated. Angioneurotic edema, erythema multiforme, and other evanescent eruptions were seen but rarely.

B. *Febrile or Herxheimer Reactions*

The Herxheimer reaction, which is usually manifested by a febrile response or temporary flare-up in clinical lesions, has been noted in all forms of treatment used for syphilis. Penicillin therapy does not avoid this form of reaction, and, in the various treatment schedules used, from 30 to 60% of cases evinced the reaction in the form of fever, ranging from 101 degrees F., to 104 degrees F. The fever usually subsides in 24

to 48 hours in spite of continuation of therapy with penicillin. Whereas the Herxheimer reaction is not serious in early forms of syphilis, in late syphilis a flare-up of an invisible lesion involving a vital organ, such as the cardiovascular system or the central nervous system, may produce enough edema to cause a serious disturbance of function of these systems resulting in permanent disability or even death. For this reason it appears advisable to begin therapy in late syphilis with smaller doses of penicillin than is used in early syphilis, using only 100 to 5,000 units per dose for the first few days.

SUMMARY

1. Sodium penicillin in aqueous solution given intramuscularly every 3 hours night and day has shown great promise as in intensive, short-course type of therapy in early syphilis.

2. Penicillin sodium has also demonstrated marked beneficial effect in syphilis of the central nervous system, congenital syphilis, and interstitial keratitis.

3. The reactions due to the administration of penicillin in syphilis are not toxic to an extent requiring interruption of treatment, but caution is required to prevent possible serious Herxheimer reactions in late syphilis.

4. The immediate results of the treatment of syphilis in pregnancy and early congenital syphilis indicate that penicillin is probably the treatment of choice in these conditions.

5. The addition of small amounts of mapharsen or bismuth to penicillin treatment in syphilis has resulted in a marked additive effect, and apparently proven of increased efficacy of the treatment.

6. Fever therapy combined with penicillin in syphilis of the central nervous system is more effective than either used alone.

7. Penicillin in peanut oil-beeswax results in delayed absorption of the penicillin when given intramuscularly, and gives promise of a penicillin preparation suitable for the ambulatory treatment of syphilis.

811 South 20th Street.

EVALUATION OF THE FENESTRATION OPERATION FOR DEAFNESS

E. R. NODINE, M. D.

Montgomery, Ala.

Since all therapeutic measures have failed in the past to alleviate chronic progressive deafness, any new approach to the problem that offers improvement seems worth trying with some degree of enthusiasm. Fenestration of the human labyrinth is not strictly a new procedure. Otologists in Europe as far back as 1895 were experimenting with it for the cure of deafness due to ankylosis of the stapes with a good functional organ of Corti, provided the patient had excellent bone conduction of sound. The greatest barrier in the past has been the maintenance of the good hearing obtained at first by opening the bony labyrinth. Holmgren[1] and Sourdelle[2] were the original pioneers in this work and their experiences are well worth reviewing.

Their greatest problem, as with all others until recently, had been to maintain a permanent fistula. Today, this obstacle has been overcome to a great extent. Lempert[3] seems to have contributed a monumental advance in this direction by developing a one-stage operation, with or without a cartilage stopple inserted in the fenestration. Shambaugh[4] has from time to time also added minor refinements in technique that seem to sustain the gain in hearing. Therefore, since it is established that the hearing in clinical otosclerosis can be improved to an economic level and the fistula made to remain open, it seems logical that one should accept this new advance in otology with en-

1. Holmgren, G.: The Surgery of Otoslerosis, Arch. Otolaryng., June '46.

2. Sourdelle, N.: New Technique in the Surgical Treatment of Progressive Deafness, Bull. New York Acad. Med., Dec. '37.

3. Lempert, J.: Fenestra Nov-Ovalis with Mobile Stopple, Arch. Otolaryng., Jan. '45.

4. Shambaugh, G.: Surgical Treatment of Otosclerosis, Arch. Otolaryng., June '46.

thusiasm and expect permanent results in properly selected cases.

The type of patient selected for this operation is important. He or she must have clinical otosclerosis. We say clinical because otosclerosis is a histologic entity due to disease of the otic capsule and therefore must be diagnosed in life by presumptive findings. Patients to be candidates must possess good bone conduction, an intact tympanic membrane and a live labyrinth. Audiometric recording of bone and air conduction aid materially in the selection of candidates. With the tuning forks a negative Rinne must be obtained and a lateralization by the Weber test if possible. The worst ear is usually selected for operation. The drum need not be absolutely perfect; recent work has shown that fair results can be had even with a slight perforation or some scarring. A normal, live labyrinth is essential. This can be easily ascertained by employing the caloric tests (Barany). The age of the patient can be from 15 to 60, provided he is in good physical condition. All work is done under local anesthesia for greater safety.

In about one percent of cases the hearing is made worse, but Lempert has recently reported that, up to date, 33 percent of patients who were operated on six or more years ago have been rehabilitated socially and economically through restoration of the hearing to normal conversational levels. Through recent improvements in technique he considered that in approximately 75 percent of cases primary restoration of the hearing to normal conversational levels could now be secured by operation. The fenestration rarely closes if it has remained open for two years or more.

From the above it is apparent that the *sine qua non*, as far as successful result is concerned, is the careful selection of the patient for this type of surgery. Every effort should be made to evaluate bone conductivity and the condition of the labyrinth before any work is attempted. Over age fifty there is also some secondary degeneration of the organ of Corti, but this is not an absolute contraindication if it is not too far advanced. I know of one case of my own that did not get a good result because too little attention was paid to secondary nerve degeneration preoperatively. The patient no doubt had otosclerosis but he had too severe a loss in the higher frequencies on the audiometer. One should always be on guard for this as it has a bearing on the end results.

There are no real dangers entailed in the operation as far as mortality is concerned and results should be favorable if one is willing to adhere to a rigid technique. It is the one operation that cannot be bluffed. The postoperative discomfort is largely confined to vertigo and there is practically no pain. Infection is a rare complication, and as the work is done endaurally there is no ugly scar.

While I do not feel that surgery alone is and will be the ultimate solution to the arrest and cure of otosclerosis, I am convinced that the results justify the means, since medicine has nothing better to offer. Patients who are considering the operation should be told all the facts. It should be pointed out that it is an optional procedure of major import. They should be told that they should weigh these facts against the use of a hearing aid which entails no risk. A hearing aid can be used if the operation fails. If the candidate fully appreciates all the pros and cons, one feels justified in performing the operation.

Pyelitis—Thorough investigation and diagnostic procedures, which should include an exhaustive search of the entire body for possible foci of infection and visualization of the entire urinary tract, preferably by retrograde pyelographic studies and determination of type of infecting organism, are imperatives before an intelligent outline or plan of treatment be constructively formulated.

Good judgment must be exercised as regards cystoscopic and pyelographic procedures, particularly when the patient is acutely ill. However, the patient, acutely ill with chills, fever, and gastro-intestinal symptoms secondarily to an obstructive urinary tract lesion and associated infection, has an infinitely better recovery outlook if an early diagnosis is made and the obstructive process immediately eliminated.

Many patients ill from acute hematogenous infections of the kidney and who have no urinary tract obstruction, congenital or acquired, recover practically simultaneously with the disappearance of their acute respiratory or other type of focal infection. The possible presence of a urinary tract obstructive process should be investigated in every instance.—*Birdsall, Delaware State M. J., Nov.* '46.

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DOCTORS WITH INITIATIVE

(Reprinted from the Huntsville Times, Dec. 6, 1946)

Ever since President Roosevelt began his effort, 13 years ago, to make the United States an economic democracy as well as a political one, we have witnessed fierce defensive fights by groups which profited from the stranglehold given them by the old system.

Most of these groups have refused to recognize the plain fact that their day of absolute domination was done, and instead of finding a strong role for themselves in the new order, they have tried to fight off all change. In the struggle, some have been brought to utter defeat when they might have salvaged much.

The people of this country, through their Government, have stepped in wherever private capital has failed to recognize human rights. This government "interference" has in reality been an expression of dissatisfaction by the majority of Americans with the inflexible economic framework in which our industrialized society no longer fitted. The masters of that framework tried to keep it inflexible—and failed.

There is at least one group, however, which has seen the handwriting on the wall and has taken a realistic view of the situation.

This group is the American medical profession.

Doctors cannot be classified as economic royalists, for as a profession they have always held service above money, and have given generously of their care to the indigent.

Nevertheless, under our traditional system, medical attention has been unavailable to too many people. The expense of unexpected illness or accident has ruined too many thrifty families, left too many widows and children penniless.

Seeing this, the people, through their Government, have advanced a plan for compulsory health insurance to be administered on a national scale, under a deduction plan similar to those for old age insurance and unemployment compensation payments.

Many doctors have opposed the plan vigorously without offering anything else to fill the obvious need. These are like the other groups which have tried to preserve the status quo against the wish of the majority.

There is a strong movement among other doctors, however, to meet the challenge by proposing an alternate plan, to be administered entirely by physicians, and to be voluntary on the part of the public. In Alabama, Dr. Carl Grote of Huntsville, as president of the state medical association, is a leader of this trend.

If they are to succeed in making the plan so generally adopted as to render government action unnecessary, doctors have a tremendous selling job to do. If they do succeed, however, they will have brought great credit to their profession. Their demonstration of intelligence and responsibility may give the country better health protection than any Government-administered plan that could be devised.

GROTE ADVOCATES HEALTH INSURANCE

DOCTORS URGED TO TAKE LEAD IN ESTABLISHING VOLUNTARY PROTECTION

(Reprinted from the Huntsville Times, Dec. 6, 1946)

Support by the medical profession of a voluntary prepayment plan for medical, surgical and obstetrical care in hospitals was advocated last night before North Alabama doctors by Dr. Carl A. Grote, of Huntsville,

president of the Alabama Medical Association.

Speaking at a meeting of the association's northeastern district, Dr. Grote urged that doctors take the lead in providing a means of financial protection against catastrophic illness.

In its three years of existence, he pointed out, the Postwar Planning Commission, acting for the medical association, has achieved the formation of a non-profit prepayment plan by adding to the Blue Cross program a provision for medical, surgical and obstetrical care. To date, he said, 20,000 Alabamians have availed themselves of the full protection, while 160,000 carry the group hospital insurance.

In October of this year, the organization paid $100,000 in hospital bills and $16,000 in medical, surgical and obstetrical expenses, he told the meeting, asserting that protection under the plan was less expensive than tobacco, liquor and cosmetics.

Dr. Grote reviewed the history of public health work in Alabama, declaring that doctors had taken the lead in establishing it, and said that the profession was faced with a similarly necessary task in correcting present defects in the distribution of private medical care.

HOSPITAL PROJECTS NOW AWAIT FUNDS

GEORGIA AND ALABAMA READY TO GET STARTED, HEALTH OFFICERS AVER

(Reprinted from the Huntsville Times, Dec. 6, 1946)

WASHINGTON, Dec. 6 (AP)—Georgia and Alabama health officers predicted today their states "will be ready to go ahead" with widespread hospital construction whenever Congress votes Federal-aid funds.

Both expressed confidence the new Congress will vote the $75,000,000 authorized annually for five years to aid hospital construction, but said they expected nothing before July 1, beginning of the next fiscal year.

Dr. B. F. Austin, Alabama health chief, said his state has passed necessary legislation already and has completed a survey to determine areas of greatest need.

Dr. Guy G. Lunsford, Georgia deputy health officer, said his state also already has "all necessary laws" to share in Federal aid and has under way a survey to ascertain the location and type of hospitals to be built.

Alabama and Georgia will receive approximately $3,000,000 each yearly under the 1946 Hill-Burton act, if Congress appropriates the $75,000,000 yearly that it authorized. For each federal dollar, however, they must put up $2.

Under requirements being laid down by the Public Health Service for participation in the Federal-aid program, both Lunsford and Austin "see nothing that we can't meet."

Pointing out that Alabama's enabling laws were drafted after a study of the then pending Hill-Burton bill, Dr. Austin said that the most his state will have to do "is maybe get some minor amendments through the legislature."

The physicians are attending the annual conference of state and territorial health officers here.

CENTENNIAL MEETING AMERICAN MEDICAL ASSOCIATION

The American Medical Association is going to celebrate its centennial in Atlantic City, June 9-13, 1947. Elaborate plans are being made for this celebration.

Only Fellows and invited guests are eligible to attend. Membership in the State Medical Association is the primary qualification for Fellowship in the American Medical Association. Fellowship dues and subscription to The Journal of the Association are both included in one annual payment of $8.00, which is the cost of the Journal to subscribers who are not Fellows.

If you are not a Fellow and plan to attend the Atlantic City session, which will be a milestone in medical history, you can save yourself considerable time and confusion when registering, if you will write now to the American Medical Association, 535 North Dearborn Street, Chicago 10, and ask if you are eligible to become a Fellow.

HEALTH AND MEDICAL CARE COUNCIL

On November 13th leaders in practically every field of activity—State officials, heads of educational organizations, labor leaders, industrialists, newspaper men and many others—gathered in the House of Representatives in Alabama's historic State Capitol with a single dominating purpose: to provide better health care for the approximately 3,000,000 persons now living in this State

and for the untold millions of Alabamians still unborn. It is hoped that the fruits of that gathering will be seen soon in greater happiness, increased working efficiency and a substantial lifting of standards of health progress all along the line.

That meeting had its genesis in a meeting of the Postwar Planning Commission of the Medical Association of the State of Alabama, held several weeks earlier in the office of the State Health Officer. The need for better health care for the people of Alabama, especially for those of the economically submerged groups, was discussed at some length by members of that committee and a few others invited to participate, and it was decided to take positive action without further delay. A committee was appointed to call upon the Governor and request him to call a meeting of the State's leaders in political and nonpolitical fields for more extended consideration of that problem. Both the committee and its request were warmly received by Governor Sparks, who immediately began making plans for the requested meeting. Invitations were issued a few days later.

It was proper and natural that the Governor should be invited to deliver the opening address and outline the purposes and objectives of the gathering.

"Appropriations have grown rapidly during the past 27 years," he said. "The Legislature has provided more and more funds for public health work, and additional funds have been obtained from the federal government and from philanthropic agencies, making the $25,000 a year which was available in 1919 seem small indeed. The time has come to evaluate what has been accomplished with those greatly increased funds. You may be sure that the people of Alabama will support public health work generously if they are shown its importance and what it means to them in their own lives and communities."

The Governor told about one of Alabama's most serious health problems at the time of which he spoke and one which continues to plague our people, although considerable progress has been made in combatting it. That disease is hookworm. Mentioning a hookworm victim with whom he was personally acquainted, he referred to a baseball game in an Alabama community in which a youngster was so weakened by these parasites that he was not able to run from first to second base.

Voicing his stern opposition to state medicine, or socialized medicine, Governor Sparks expressed himself as an advocate of health insurance, by which men and women of all ages and all economic levels may protect themselves, by means of small payments over a period of many years, against the economic pitfalls of serious illness and injury. In that way, he said, everybody has a share in carrying the load of adequate health care. Financial assistance by the government for those in the low income brackets was recommended as a means of discharging part of society's obligation to see that a minimum of health care is available to all, the poor no less than the rich and well-to-do.

The Governor also made a plea for community hospitals to provide needed care for the State's sick and injured and, at the same time, attract more physicians to Alabama's rural communities and smaller towns and cities, where the need for them is so very serious. He called particular attention to the need for such institutions of healing for the State's indigent and medically indigent and urged that provision be made for treatment, without cost or at slight cost, for those unable to pay the full rates.

Dr. M. S. Davie, of Dothan, Chairman of the Postwar Planning Commission, who presided, outlined the brief history of the Commission, told how its members carefully studied many medical and health care programs in effect in different parts of the country and in other countries and expressed the hope that the meeting then in session would produce much good for the people of Alabama. He too took a firm stand against state medicine and referred to statements by medical leaders and others who had expressed the conviction that the debacle of Germany had been due in part at least to the institution of state medicine in that country.

Dr. J. Paul Jones, of Camden, a member of the Postwar Planning Commission, spoke on "Some Health and Medical Care Challenges." He referred particularly to the challenges produced by the extreme and critical shortage of physicians, nurses and other medical-care personnel in Alabama's

rural areas and made a plea for expansion of the system of prepaid hospital care indorsed by the Medical Association of the State of Alabama, for better medical care for people everywhere and for greater cooperation among various departments and agencies devoted to the lifting of health standards. He also urged expansion of Alabama's present facilities for the diagnosis and treatment of tuberculosis, cancer and certain other diseases.

"The Medical College and Medical Care" was the subject assigned to Dr. Roy R. Kracke, dean of the Medical College of Alabama. He reminded the assembled health enthusiasts that adequate medical care involves much more than physicians and that Alabama is as deficient in the other aspects of medical care as it is in that one.

The State is sadly lacking in dentists, he pointed out, adding that 20 of the State's 67 counties are without dentists. As for nurses, he called attention to the closing of many wards and floors in hospitals all over the State, in the face of a clamorous demand from sick people in need of hospital care and able to pay for it, because of a lack of nurses to provide the nursing care which those patients would expect if they should be admitted. Finally, he said, there is a shortage of medical technicians, a fact emphasized almost every day by calls from hospitals, physicians and others in all parts of the State inquiring whether he can assist them in obtaining this type of personnel.

"The Medical College of Alabama is trying to help supply this shortage in medical care personnel," he said. "It is training not only physicians but also nurses and others wishing to enter health work. Dentists will be added to this list as soon as possible. And all whom we train are urged to carry on their life work in those communities where they are most needed."

Dr. Carl A. Grote, President of the Medical Association of the State of Alabama, spoke of the progress made within the past few decades in the conquest of such diseases as yellow fever, smallpox, typhoid, malaria and tuberculosis but called attention to the fact that additional progress is being handicapped by the high cost of adequate medical care. At the same time, he called attention to the much higher cost of such luxury items as tobacco and cosmetics, which, he said, people pay for without complaint. The speaker expressed the opinion that the high cost of illness appears to be a particularly heavy burden because it usually comes suddenly and with little or no opportunity to prepare for it except by a long-time system of routine payments. That is what he recommended for better hospital care for the people of Alabama—hospital insurance, on a voluntary, non-compulsory basis.

Dr. Grote emphasized what Dr. Kracke had said about the shortage of nurses, pointing out that improved health care means more hospitals and more hospitals mean more nurses. To solve the problem, he suggested that two types of nurses be employed, well trained nurses of professional calibre for duties calling for such professional skill; and practical nurses, industrious and as capable as possible but without regular nurse's training, for the less important nursing duties.

W. O. Dobbins, Jr., Director of the State Planning Board, followed Dr. Grote, speaking on "Development of Hospital and Health Center Plans." He reminded his hearers of the axiom about "a sound mind in a sound body" and urged them and Alabamians generally to help develop a health program which would bring that ideal nearer to fruition for the great mass of the people.

Turning specifically to the master hospital plan which his group prepared, Mr. Dobbins pointed out that it envisaged the construction of additional tuberculosis sanatoria, general hospitals and hospitals for the State's victims of mental illness.

Although the program he outlined might appear quite ambitious to some persons, he declared, its completion would still leave hospital care in Alabama substantially under that regarded as adequate by authorities in this field.

"The execution of the proposed hospital construction program would be almost impossible without federal financial assistance," he said, referring to the Hill-Burton hospital construction Act passed by the 79th Congress, without, however, an appropriation to put it into effect. "It will also be difficult for many local communities without State aid to raise all the money they need to meet that part of the cost not covered by contributions from the Federal Government."

The speaker said it was hoped that eventually every family in Alabama would be at all times within 25 miles of a hospital or adequately staffed similar institution or agency.

Mr. Dobbins was followed by V. V. Mitchell, agricultural agent for the First National Bank of Montgomery and secretary-treasurer of the Alabama Farm Bureau Federation who spoke on "Medical Care Needs in Rural Alabama." The speaker expressed confidence that the people of Alabama would gladly pay for adequate health care if they could be shown the need for it.

"Forty-seven per cent of the people of the rural United States live under a cotton economy," he said. "The problems of rural health are particularly important to them."

The speaker urged a greater understanding of the problem of health care, coordination of all agencies and interests involved in its solution and launching of a mighty cooperative effort to bring about improvement in health conditions.

In a brief address, the last on the program, State Senator Bruce Henderson, of Miller's Ferry, author of Alabama's widely known statewide blood-testing law, as well as other important legislation promoting health activities, discussed the general program of improved health care. He stressed the theme that everyone is his brother's keeper and urged Alabamians to discharge that responsibility by providing more physicians, especially in the rural districts, more hospitals and better health conditions generally. He also urged that health be taught more intensively in the public schools.

The climax of the meeting came with the organization of The Health and Medical Care Council of Alabama, which was charged with carrying on the work for better health as a continuing, progressive and expanding program. Upon the recommendation of the Nominating Committee, Dr. Davie was elected Chairman, Barrett Shelton, Decatur newspaper publisher, Vice-Chairman, Mrs. Thelma M. Coburn, Secretary of the Alabama Pharmaceutical Association, Secretary, and Gilbert Sanford, a member of the State Planning Board, Treasurer. The following named persons were chosen to serve on the Executive Committee with the elected officers: Probate Judge J. C. McGough, Fayette, E. M. Chenault, M. D., Decatur, Mrs. Walter Bragg Smith, Montgomery, Secretary of the State Nurses' Association, Mr. Charles G. Dobbins, Montgomery Advertiser, Mrs. Ray Meade, State Commander, American Cancer Society, and Miss Roberta Morgan, American Red Cross.

It is hoped that that meeting marked the beginning of a new health era for the people of the State. Friends of good health will watch with great interest the effort to make this hope a reality.

MEDICAL COLLEGE OF ALABAMA

CLINICOPATHOLOGICAL CONFERENCE

Conducted by
Roger D. Baker, M. D.
Professor of Pathology
And
James S. McLester, M. D.
Professor of Medicine

Clinical abstract read by Dr. Paul Burleson of the resident staff:

A 38 year old, married, colored male, a day laborer, was admitted to the hospital on August 25, 1946. (Unit No. 29125.)

The chief complaint was "swelling and pain in stomach." The patient stated that his health had been good until four weeks before admission, when he noted swelling of his abdomen. This grew progressively worse until he became greatly distended. Two weeks prior to admission, he began having dull, drawing, and persistent abdominal pain which extended around to both lumbar regions. One week later he became nauseated and vomited three times. He noted weakness, easy fatigability and slight dyspnea, and felt feverish on occasion. His appetite was good. There had been no jaundice, diarrhea, constipation, melena, nor weight loss. He had had one to 2 bowel movements daily, productive of a soft, yellow-brown stool. He had had the usual childhood diseases. There was an accidental gunshot wound in his left shoulder at 18 years of age, "malarial fever" in 1938, gonorrheal urethritis in 1938, 15-20 "hip shots"

8 months ago. He had noted protruding hemorrhoids 6 months ago. No other illnesses, injuries, nor operations. His father, mother, three brothers and two sisters were living and well. The review of systems was essentially negative.

The patient was a well developed and well nourished colored male, of middle age, lying quietly in bed in no acute distress. He was cooperative, alert and intelligent.

The blood pressure was 150 systolic and 90 diastolic. The pulse was 88 and the respiration 20 per minute. The weight was 170 pounds.

The skin was warm and moist. There was no palpable lymphadenopathy. The head and eyes appeared normal. Ophthalmoscopic examination showed nothing abnormal. The oral hygiene was poor. The tonsils were small. The chest showed bilaterally equal expansion. The lungs were clear to percussion and auscultation. The point of maximal impulse of the heart was in the fifth interspace in the mid-clavicular line. Percussion revealed the heart to be within normal limits of size. The sounds were of good quality, with normal rate, regular rhythm, and without murmurs.

The abdomen was greatly distended by a hard, firm mass extending from the costal margin down to the symphysis pubis. Transverse indentations in this mass suggested "loculating septa." The entire abdomen was tender and tense. No fluid waves were elicited. No scars were present. The genitalia were of adult male type. Rectal examination showed good sphincter tone. The prostate was small, smooth and non-tender. The extremities were freely movable and of good muscular development. No varicosities, ulcers, nor clubbing of fingers. There were two, old, well-healed scars on the antero-lateral surface of the left upper arm. Neurological examination indicated that all reflexes were physiological.

The blood count showed 3,070,000 red blood cells and 11,600 white blood cells. There was 80% hemoglobin (12 grams). The differential count gave 22% lymphocytes, 76% segmented neutrophils, and 2% monocytes. The urine was yellow, clear, with pH of 6, specific gravity of 1.020, and was free of albumin and sugar. There were four to six red blood cells per high power field of the microscope and a few granular casts. The blood amylase was 16 mg. per cent. The Kahn was negative.

A gastrointestinal series was reported as follows: "There is no evidence of obstruction or filling defect in the colon. Entire abdomen is homogeneous, suggesting fluid. The outline is obscured by fluid." An intravenous pyelogram was reported as follows: "Detail is obscured by a homogeneous density which probably represents abdominal fluid. There is good concentration of the dye in the right kidney in five minutes. A small amount of opaque media is present in the left ureter but the calices and pelvis are not visualized. The distal end of the left ureter is not dilated. A small amount of barium was present in the region of the ceum. Suggest retrograde pyelogram for further study." Retrograde pyelogram: "Both ureteral catheters in place. The calices, pelves and ureters of both kidneys are well filled, smooth and not dilated."

Chest (portable x-ray): "The lung fields appear clear."

The hospital course was not remarkable, and the patient was taken to the operating room on September 4th and an exploratory laparotomy performed. Following this operation, the patient's temperature rose steadily to 103 degrees, and the abdomen became distended. On the morning of September 5, 1946 he vomited once. Wangensteen suction was started and penicillin therapy begun. On September 6th, temperature rose sharply to 106.8. He was given a transfusion of 500 cc. of plasma and 500 cc. of whole blood with no reaction. The temperature dropped to 105.8 degrees and the patient expired.

Clinical Discussion—Dr. McLester

This history presents the following

salient features

1. Brief illness (four weeks)
2. An abdominal tumor which was
   a. Enormous in size
   b. Rapidly growing
   c. Lobulated
3. Roentgenological evidences of
   a. High diaphragm on right
   b. Normal liver and kidneys
   c. Normal colon

The story is a short one. Two significant features should be emphasized: (a) the short period of illness, and (b) the enormous size and rapid growth of the tumor. It

is reported, too, that the tumor was lobulated. Two questions present themselves: What was the nature of this tumor? And, what was its origin? Before attempting to answer these questions I should like to ask Dr. Goodall to tell of the findings at operation.

Dr. George Goodall of the resident staff: The entire abdomen was filled with a tumor mass which extended from the xiphoid to the pubis. The tumor was largely solid although it felt as though it had fluid in it in places. It was pearly gray to yellow in color. It extended into both lateral gutters and deep into the pelvis. We lifted the tumor from the abdominal cavity and found it to lie in the omentum attached to the transverse colon. The small bowel had small implants on it as did the peritoneum. The spleen and liver were normal. There were 2½ liters of dark fluid in the abdomen. The tumor ruptured on removal, giving rise to clear fluid and old blood. The tumor was the size of a three months pregnancy and was removed to make breathing easier for the patient. There was no hope of cure.

Dr. McLester: Will the members of the class offer an opinion as to the nature of this tumor?

Student: I suggest teratoma or liposarcoma.

Another student: Tuberculous peritonitis.

Another student: Pseudocyst of pancreas.

Another student: A retroperitoneal sarcoma.

Dr. McLester: Each of these suggestions is worthy of consideration. This is not the story of tuberculous peritonitis. The duration is too short, the tumor forced itself on the attention of the patient only four weeks before he came to the hospital and, too, although tumor-like masses of omentum can be palpated in tuberculosis of the peritoneum, they are never of this size. There was no fever prior to operation and no weight loss. The picture was not that of tuberculous peritonitis.

Endothelioma of the peritoneum is rare and with the history presented seems unlikely. The same is true of teratoma and of pseudocyst of the pancreas.

To me the picture is that of sarcoma. I shall speak of this again in a moment. Other possibilities, however, should be considered.

Could this patient have had carcinomatosis of the peritoneum such as was demonstrated at one of our recent conferences? No, the rapidity of growth, the character of the tumor and its size would speak against that.

Could it have been an hepatoma? Its large size and the fact that it was attached "above and behind" would lend color to this belief. Against this, however, is the rapidity of growth and the cystic appearance of the tumor, as well as the absence of jaundice. True, the absence of jaundice does not necessarily rule out a large carcinoma of the liver, but it is fair evidence to the contrary. I don't think it was carcinoma of the liver.

Was it a hypernephroma? Here again size and rate of growth could be offered in support, but we are told that the kidneys were normal and that the growth had a cystic feel. This would seem to rule out hypernephroma.

In Summary, this tumor was highly malignant and apparently did not arise in an abdominal viscus. Largely from this evidence I would reach the following:

Clinical Diagnosis

Sarcoma (possibly melanotic) arising in omentum or retroperitoneal structures

Islands of tumor tissue on surface of intestine

* * *

Pathological Discussion—Dr. Baker

The operative specimen is a huge mass



Fig. 1. Free surface of tumor removed at operation.

(Figure 1). It is yellowish-gray, elastic and moderately firm. Some regions are cystic. On the cut surface there are thrombosed blood vessels. The tumor has sprung from the omentum since it occupies this structure and since there is no large mass elsewhere, as in the retroperitoneal tissues, for example. There are implantations of tumor in the form of nodules on the peritoneal coverings of the intestines and pelvis. There is absence of metastases in liver, lungs, and lymph nodes. The lungs are compressed, and it is easy to see how, with all the fluid and the great mass in the abdominal cavity, there might have been difficulty with respiration.

The microscopic sections (microscopic projection) indicate that the omental tumor is a sarcoma (Figure 2). There are spindle-

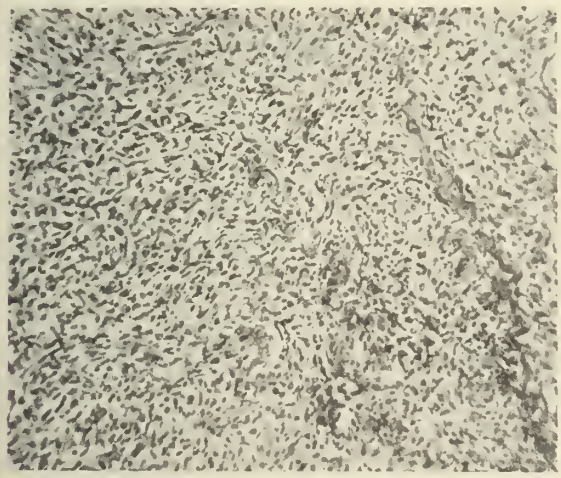


Fig. 2. Microscopic appearance of tumor.

shaped cells, mitoses, variation in nuclear size, multinucleated cells—everything typical of sarcoma. In less rapidly growing areas there is collagen between the cells. These areas tell us that this is a fibrosarcoma which has arisen from the fibrous tissue of the omentum or of the sheaths of nerves in the omentum. I cannot exclude neurofibrosarcoma, though there is no "palisading" of nuclei. Search for cross striations indicating rhabdomyosarcoma is in vain. It does not resemble a liposarcoma and it is not a metastatic carcinoma. There is no melanin pigment in cells to indicate melanosarcoma.

The sections show many thromboses and areas of necrosis in the tumor. The necrosis is important because this may have been the cause of the onset of symptoms, and the tumor may have been of much longer duration than the symptoms suggest. The necrosis is also important in regard to operative treatment, for if the tumor had been left in at operation the necrosis of the tumor tissue would have caused progressive increase in symptoms.

Anatomical Diagnosis

Fibrosarcoma of omentum
Implantations on peritoneum
Ascites, and postoperative peritonitis
Necroses of liver and spleen

Dr. Scholes has consulted the literature on the subject of omental sarcomas. Dr. Scholes.

Dr. Daniel Scholes of the resident staff: The omentum in general in surgical, medical and pathologic textbooks gets very little attention. The discussion in current textbooks consists chiefly of three or four sentences stating that the conditions involving the omentum are: (1) Traumatism of the omentum, (2) torsion of the omentum, and (3) inflammatory tumors of the omentum. The omentum functions largely to combat infection wherever it appears in the peritoneal cavity. It hangs apron-like from the transverse colon, is centrally located and is more or less mobile, being capable of shifting over an appendix about to rupture and over any beginning perforation of the intestine. Generally it is more a combatant of than a victim of disease.

Until 1934 there were only 75 cases of primary omental tumors recorded in the literature. Benivieni of Florence, in the fifteenth century, described the first primary omental tumor. A German professor, Braun, had the distinction of first surgically removing such a tumor, a myxosarcoma. Since that time, until 1934, 73 malignant tumors of the omentum have been listed. Of these primary omental tumors the surface texture, shape and configuration may be variable; can be smooth and firm or cystic and spongy. When cysts occur they often contain sanguinous fluid. There is a resemblance between today's tumor and a placenta. One report concerned a 27 year old negro woman whom the attending clinicians thought to be in the early stages of pregnancy. They felt a soft, spongy tumor which fitted plausibly with the idea of pregnancy.

After entering the abdomen they still believed pregnancy offered an easy explanation for the placenta-like tumor, but on resecting the omentum they found it to be not a pregnancy but a hemangiosarcoma of the omentum. The most helpful article on the subject of omental tumors is that by Ransom and Sansom—Ann. Surg. 100: 523, 1934.

STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

B. F. Austin, M. D.
State Health Officer

ALABAMA'S BLOOD-TESTING PROGRAM

A little more than three years ago the State Department of Health undertook one of the most revolutionary health-protection campaigns ever begun in the long history of public health. I refer to the launching of a statewide compulsory blood-testing program under the terms of the Henderson-Edwards Act passed by the 1943 Legislature. Thanks to its operation, the time is not far off when Alabama will become the first state in this or any other country to have completed the blood-testing for syphilis of all its residents between the ages of 14 and 50.

The law has been widely discussed in newspapers and magazines and on the radio, but its exact provisions are still unfamiliar to many people. It is relatively short, as legislative enactments go, and I shall therefore quote it in full. Known officially as "An Act to provide for the blood-testing for syphilis of all persons residing in Alabama, and to appropriate not to exceed $75,000 annually to carry out the terms of this Act," it reads as follows:

Be it enacted by the State of Alabama:

Section 1. Except as herein provided, all persons between the ages of 14 and 50 residing or living in the State of Alabama shall have their blood examined for syphilis by an approved laboratory test. The laboratory tests required in this Act shall be approved by the State Board of Health and shall be performed either in the laboratories of the State Board of Health or in a laboratory approved by the State Board of Health. The collection of blood specimens shall be done by a county basis and the State Board of Health shall determine the sequence by counties in which the collection shall be done. The State Board of Health shall provide for the collection and examination of specimens and shall designate the dates when such specimens shall be collected in each county. Provisions shall be made for the subsequent testing of children attaining the age of 14 and of new residents of the county who have not been tested under this Act. Each person tested under the provisions of this Act shall be furnished a certificate by the State Board of Health stating that he complied with the provisions of this Act. When one member of a family, tested under this Act, shows a positive test for syphilis, all other members of that family below the age of 14 or above the age of 50 and living in the same household shall be included under the provisions of this Act. Members of the armed forces of the United States are not subject to the provisions of this Act. Any person sick or injured at the time of the official testing may present a certificate from a physician duly licensed in the State of Alabama temporarily exempting him or her from this test. It shall be the duty of the physician signing such certificate to be responsible for securing the necessary specimen when such person is able to have the test made. The State Board of Health, for cause, shall have the right to exempt any persons from the provisions of this Act. Any person who shall wilfully fail or neglect to comply with any of the provisions of this Act shall be guilty of a misdeameanor and upon conviction thereof, be fined not less than $10.00 or more than $100.00.

Section 2. There is hereby appropriated from the State Treasury an amount sufficient to carry out the terms of this act in an amount not to exceed $75,000 annually.

Section 3. All laws or parts of laws in conflict with this Act are hereby expressly repealed.

Section 4. If any section, clause, provision, or portion of this Act shall be held invalid or unconstitutional by any court of competent jurisdiction, such invalidity shall not affect any other section, clause, provision, or portion of this Act which is not of itself invalid or unconstitutional and it is now declared that the other parts or sections would have been enacted regardless of any section or parts of sections which might be held invalid or unconstitutional.

Section 5. This act shall take effect immediately upon the passage and approval of this Act or its otherwise becoming a law.

The Alabama blood-testing law, more familiarly known as the Henderson-Edwards law, brings to at least partial fulfillment a brilliant dream which filled the minds and imaginations of medical men and others soon after Wassermann, in 1907, devised the first reliable method of blood-testing a person and ascertaining whether he or she had syphilis. That dream gripped even more imaginations about 1910 when another great

man of science named Ehrlich discovered the drug which would cure it. Thus, in a space of about three years, the human race found a method of diagnosing and treating a form of illness which had plagued it for centuries.

Theoretically, the conquest of this great killer and crippler was thus within sight 35 or more years ago. However, as a writer in the magazine *Future*, the official publication of the U. S. Junior Chamber of Commerce, declared:

"But more than a third of a century has passed since those optimistic predictions (of the rapid mastery of syphilis) were made, and syphilis is still far from being conquered. A great deal of progress has been made, it is true, but uncured cases still heavily outnumber those that are being cured, and millions of syphilis victims are receiving no more benefits from Wassermann's and Ehrlich's labors and achievements than if these men had never lived. They and the others who carried on their work are not to blame of course. Those who have availed themselves of their discoveries have received every benefit that reasonably could be expected. But the hard fact remains that only a relatively small minority of the nation's and the world's syphilis victims have taken advantage of the diagnostic and treatment facilities to be had virtually for the asking. And the reason why the number is so small is that those who have needed those facilities have not been required to avail themselves of them."

That has been particularly true of syphilis diagnosis. If a person can be convinced that he has this disease—or any other serious illness, for that matter—it is usually fairly easy to induce him or her to take treatment, especially if it is free, as it usually is whenever this disease is involved. If such a person decides to remain untreated, his friends and the public health agencies can put considerable pressure upon him and in many places, including Alabama, the latter may send him to jail if he persists in his stubbornness. However, for many years after it became a crime for a person known to have syphilis to refuse treatment millions of actual syphilitics were permitted to carry on their normal activities and expose their friends and associates to infection without the slightest official restraint, unless they were engaged in certain lines of work—such as food handling, barbering, etc. They are still permitted to do so in every state of the Union with a single exception. That exception is Alabama. And the law which places Alabama ahead of all her sister-states in this important respect is the already mentioned Henderson-Edwards Law.

Those in charge of the blood-testing program have been realistic enough from the beginning to know that a certain number of persons would try to evade the law, in spite of its penalties. However, they have operated on the policy that it is better in every way to win the public's cooperation and "sell" the non-cooperators on the wisdom of the campaign than it is to force obedience from them by constant swinging of the policeman's night stick. For that reason, the emphasis has been upon education and persuasion rather than upon threats of punishment.

To that end, those who enter a particular county to conduct the actual blood-testing are preceded by an advance guard of educators, whose task it is to let the people know what the program is all about, how they are expected to participate and the need for wholehearted support. Newspapers, motion pictures, the radio, posters, booklets, pamphlets and numerous other educational media are employed on an intensive and extensive scale, and by the time the campaign proper—that is, the actual taking of blood samples—begins it must be a rare and isolated individual indeed who has not become well informed regarding the location of the blood-taking stations, the exact blood-testing period, and other details of the campaign.

As the blood-testing progresses, the names of those who have appeared to give blood samples are checked off of a carefully prepared list, and when the campaign is over measures are taken to round up those who have failed to present themselves for the tests. First a letter containing a copy of the law is sent to everyone whose name has not been checked off. This usually brings to the county health department practically all those whose non-compliance was due to ignorance. Then to those whose names are still on the list goes a second and firmer letter. Then, after a brief wait for response, a third letter is sent out not to the person himself but to his employer requesting his cooperation with the public health authorities in bringing the employe to the county health department. If this third and final letter is also unproductive, the person's name is turned over to the sheriff, who gets busy rounding him up and giving him a

choice between compliance and a jail sentence, which, incidentally, would automatically require him to submit to such a test, since blood-testing for syphilis has long been required of all persons incarcerated in State, county and city penal institutions.

Beginning, properly enough, in Wilcox County, the home county of the law's "father," Senator Bruce Henderson, the blood-testing campaigns have been making their county-by-county way about the State during the past three years or more. Montgomery County will not be caught in its broad sweep for several months yet, but the blood-testers are already setting up their equipment in near-by Autauga County preparatory to beginning actual blood-testing in Prattville and throughout the county during the two weeks December 2 through December 14. Autauga will thus become the thirtieth county to be blood-tested. Twenty-nine blood-testing stations will be set up in all parts of the county so that compliance with the law will not work a hardship or serious inconvenience upon anyone. Indications are that about 10,000 persons will be tested.

A person whose test is positive will be requested to visit the county health department for a verbal report, which of course will be given in complete confidence. When that report is made, he will be requested to give a blood sample for a second test. If this too is positive, the case will be definitely diagnosed as positive and the person will be urged to begin treatment without delay, either from his private physician or at the Mid-South Medical Center, in Birmingham, where a cure is normally produced in nine days of intensive treatment with penicillin. If, however, that second test proves negative, the patient is requested to provide a third specimen. If that too is negative, then a definite negative diagnosis is made, and the patient is declared to be free of the disease. The taking of second and third tests protects the public against the necessity of submitting to treatment for a non-existent disease.

The writer urges the people of all counties to show the same fine spirit of cooperation which they have shown in other measures having to do with individual and community health. In doing so, they will help materially in promoting the happiness and well-being of all.

BUREAU OF SANITATION

Arthur N. Beck, M. S. in S. E., Director

STREAM POLLUTION ABATEMENT LEGISLATION

Contributed by
C. W. White
Prin. San. and Public Health Engineer

The existing problem of pollution abatement has become of national interest as indicated by the number of bills that have been introduced in Congress during the last ten years. Three important bills were introduced during the 79th, or last, Congress.

The Spence Bill, which advocated state authority over the pollution problem, received the endorsement of state health authorities and engineering organizations. This bill, as proposed, would provide for federal technical service and financial aid to states, municipalities, and other public bodies and interstate agencies, and, in some cases, would make loans to industrial enterprises in the execution of their water pollution abatement programs.

The advocators of the Mundt Bill argued that the states have failed to control pollution and that only federal authority would solve this knotty problem. No state authority would have jurisdiction over any action taken.

The House Rivers and Harbors Committee had an extended hearing from parties interested in the problem. After the hearings, the Committee drafted and introuced a bill known as the Mansfield Bill which proposed a compromise. This bill did not please many from either side so it, along with two other bills, failed to become law.

Similar or revised forms of these bills will probably be introduced during the next Congress. The debate between state and federal control will more than likely continue until a satisfactory compromise is reached and action is taken in Congress.

A number of states have passed bills which form special stream control agencies consisting of state officials and private citizens to administer control measures. This type of bill can readily be adapted to meet the requirements of the Spence Bill. The number of such authorities that have been set up in the states indicate the constructive interest in pollution abatement at state level. Many of the control groups utilize the services and knowledges of state health

department personnel, and the state sanitary engineers are frequently given key assignments in the pollution agencies.

The Bureau of Sanitation of the Alabama State Health Department has prepared a bill to regulate and control the pollution of the water resources of the state. The bill follows the trend throughout the country in forming a board to administer and supervise the enforcement of all laws regulating the pollution of waters. The Chief Sanitary Engineer is designated as the technical secretary of the board. Copies of the proposed bill have been distributed to persons and agencies interested in business, industries, municipalities and sportsmen in order to win their support of the measure when it is introduced in the Legislature.

The engineers in the Bureau of Sanitation have made a contact survey of practically all of the industries in the state that may be polluting the streams so that the problem may be evaluated. The survey was fractional in scope, though a general picture of the conditions caused by pollution was determined. The preliminary survey confirmed the belief that more comprehensive engineering studies of the problem is needed before specific regulations can be formulated. A report of this survey is now being prepared along with maps of each major drainage area showing the streams that may be affected and where pollution is introduced. The calculated deficiences in stream flow to maintain desirable conditions, along with other information, are also shown. Upon completion, copies of the report will be made available to the members of the Legislature and other interested parties.

Postoperative Embolism—There can be little argument that prevention of venous thrombosis is the better method of attacking the problem of pulmonary embolism. In avoiding the venous stasis which seems all important in initiating intravascular coagulation one can afford to give much thought to the earlier ambulation of postoperative patients and to mobility and bed exercises in the period preceding ambulation. Once thrombosis has occurred and is recognized much depends upon the presence or absence of the signs of inflammation. In the absence of inflammatory signs indicating that the thrombus is adherent the patient's safety is enhanced by proximal vein ligation.—*Moore, Texas State J. Med., Dec.* '46.

BUREAU OF PREVENTABLE DISEASES

CURRENT MORBIDITY STATISTICS

1946

	Sept.	Oct.	E. E.* Oct.
Typhoid	6	3	19
Typhus	41	25	53
Malaria	202	113	781
Smallpox	0	1	0
Measles	16	12	13
Scarlet fever	36	67	122
Whooping cough	11	36	67
Diphtheria	48	47	152
Influenza	107	78	138
Mumps	15	20	32
Poliomyelitis	38	18	9
Encephalitis	5	0	1
Chickenpox	5	10	16
Tetanus	6	3	4
Tuberculosis	292	233	222
Pellagra	2	5	10
Meningitis	6	10	10
Pneumonia	161	118	115
Syphilis	1177	1507	1680
Chancroid	18	31	15
Gonorrhea	683	964	479
Trachoma	0	0	0
Tularemia	0	0	0
Undulant fever	2	7	6
Dengue	0	0	0
Amebic dysentery	2	2	0
Cancer	263	238	0
Rabies—Human cases	0	0	0
Positive animal heads	31	34	0

As reported by physicians and including deaths not reported as cases

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

Diabetic Acidosis—Mild acidosis usually can be corrected by the simple administration of glucose solution orally in the form of fruit juice, perhaps with added sugar, accompanied by insulin in dosage estimated by ratio of approximately one unit of insulin to each two grams of glucose, as for example, 10 units for 200 cc. of orange juice. This may be repeated at intervals of one to two hours for perhaps six or eight hours until the acidosis disappears. However, the severely acidotic patient is likely to be vomiting, or if not vomiting, he may fail to absorb fluids from oral administration because of an acute dilatation of the stomach. In this instance it is advisable initially to give 1000 cc. of 10 per cent glucose solution in normal saline intravenously very slowly. This may be followed by isotonic glucose solution subcutaneously or per rectum. When given subcutaneously, 5 per cent glucose in distilled water is ordinarily tolerated quite well. Repeated intravenous injections may then be alternated with subcutaneous administration if necessary. Here again it is advisable to administer with each two grams of glucose one unit of insulin, which may be given subcutaneously rather than intravenously in the average case.—*Swanson, J. Iowa Med. Soc., Dec.* '46.

ANNUAL SESSION

BIRMINGHAM

APRIL 15, 16, 17

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES, AUGUST 1946, AND COMPARATIVE RATES FOR 1946, 1945 AND 1944

Births, Stillbirths, and Causes of Death	Number Registered—During August 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births, exclusive of stillbirths	7419	**	**	30.2	24.4	26.5
Stillbirths	218	**	**	28.5	27.6	26.2
Deaths, exclusive of stillbirths	1892	1086	806	7.7	8.2	7.5
Infant deaths, Under one year	249	139	110	33.6	44.1	39.2
Under one month	194	112	82	26.1	27.0	23.2
Typhoid and paratyphoid 1, 2	1	1		0.4	0.4	1.2
Epidemic cerebrospinal meningitis 6	2	2		0.8	1.2	1.2
Scarlet fever 8						
Whooping cough 9	4	2	2	1.6	4.5	2.8
Diphtheria 10	2	2		0.8	2.0	1.2
Tuberculosis, all forms 13-22	89	42	47	36.2	25.4	44.9
Malaria 28	2		2	0.8	0.8	2.4
Syphilis 30	27	6	21	11.0	8.1	10.6
Influenza 33	7	5	2	2.8	2.4	2.8
Measles 35	2		2	0.8		0.4
Poliomyelitis 36	2	2		0.8	2.4	0.8
Encephalitis 37	1	1		0.4		
Typhus fever 39	1	1		0.4	2.8	1.2
Cancer, all forms 45-55	192	126	66	78.1	78.5	67.7
Diabetes mellitus 61	23	13	10	9.4	10.6	9.0
Pellagra 69	8	3	5	3.3	3.7	0.8
Alcoholism 77	3	1	2	1.2	1.2	0.4
Intracranial lesions 83	164	102	62	66.7	78.1	66.1
Diseases of the heart 90-95	395	232	163	160.7	170.1	139.1
Diseases of the arteries 96-99	26	19	7	10.6	11.8	7.3
Bronchitis 106					2.0	0.8
Pneumonia, all forms 107-109	60	41	19	24.4	24.0	23.7
Diarrhea and enteritis (under 2) 119	10	7	3	4.1	17.1	21.2
Diarrhea and enteritis (2 and over) 120	2	2		0.8	2.8	3.3
Appendicitis 121	10	2	8	4.1	5.3	6.1
Hernia, intestinal obstruction 122	18	9	9	7.3	6.5	6.1
Cirrhosis of the liver 124	11	7	4	4.5	2.0	4.1
Nephritis, all forms 130-132	125	71	54	50.9	57.4	53.8
Puerperal causes 140-150	24	8	16	31.4	47.1	28.5
Puerperal septicemia 140, 142a, 147	11	6	5	14.4	14.6	6.0
Suicide 163-164	24	20	4	9.8	4.9	3.3
Homicide 165-168	38	12	26	15.5	13.8	8.2
Accidental deaths, exclusive of motor vehicle 169, 171-195	100	63	37	40.7	40.7	47.3
Motor vehicle 170	56	43	13	22.8	22.4	17.5
All other known causes	321	203	118	130.6	148.1	119.9
Ill-defined and unknown causes 199-200	142	38	104	57.8	49.2	63.2

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births, deaths from specific causes per 100,000 population; deaths from puerperal causes per 10,000 total births. All rates are based upon the August report of the years specified.

**Not available.

Bronchiectasis—The greatest single palliative measure is, undoubtedly, postural drainage. Its aim is to maintain the least amount of retained bronchial pulmonary secretions and thus reduce toxic absorption and obtain delay in the progress of the disease by reduction of the intrapulmonary infection. Postural drainage demands the maximum inversion of the torso, so that the dependent portions of the pulmonary tree will obtain the maximum benefit from the force of gravity. This has been well described by Alexander, who states: "Postural drainage should be carried out by the patient's lying over the edge of the bed or table sufficiently high to cause his torso to be inverted perpendicularly when his hands are resting on the floor. The taking of a half-dozen deep breaths before each half-dozen hard coughs loosens the secretions better for expectoration, and aerates the affected portion of the lung better than if the inversion and coughing are alone relied upon. Cycles of deep breathing and hard coughing should be repeated until the patient feels that no more secretions can be loosened for expectoration. The duration of the postural drainage should not be prescribed in minutes. . . ."

It is also of considerable benefit to increase the bronchial secretions by means of ammonium chloride, iodides, or medicated steam inhalations, or the inhalation of a nebulized spray of 1:100 dilution of epinephrine. This type of medication aids in the maximal evacuation of secretions. Medications for the decrease of cough are obviously harmful. Chemotherapy has proved of little use in this disease, although it still has many adherents, but it is felt that such reaction on the part of physicians has been due, in the main, to the coincidence of the normal remissions which characterize the disease. However, in occasional cases both penicillin and the sulfonamides, whether given by mouth or by nebulizer, have had an apparent excellent effort. Considerable attention should be paid to infections of the upper respiratory tract. General hygienic measures are of course indicated, with attention being directed to climate and anemia. The results from desensitization have been almost uniformly disappointing in true bronchiectasis, and one may rest assured that when good results are obtained from such therapy, that the underlying disease has, in reality, been just a true allergic bronchitis. Therefore, in summary, one may say that inasmuch as a large group of bronchiectatic patients may not be eligible for surgical methods of treatment the best modes of palliation would consist of bronchoscopy, proper postural drainage with the aid of expectorants, and adequate attention to upper respiratory disease and general hygienic measures.

There is now no question that surgery offers the only permanent cure for bronchiectasis. Lobectomy is now a safe procedure, but essentially it has only been so offered for the past ten years. And, because of the memory of hazards associated with lobectomy prior to that time, there is still some unnecessary hesitancy upon the part of some members of the profession to suggest resection.—*Abbott, J. M. A. Georgia, December '46.*

AMERICAN MEDICAL ASSOCIATION NEWS

MAN'S LIFETIME EARNINGS RISE WITH LONGER LIFE EXPECTANCY

ECONOMIST REVIEWS NEVER-ENDING QUEST FOR HEALTH; LIFE EXPECTANCY JUMPS FROM 49 IN 1900 TO 65 IN 1946

Frank G. Dickinson, Ph.D., economist and statistician of the American Medical Association, says that the average man of 20, earning $1,250 annually in 1900, could have valued his lifetime earnings at $27,400 while in 1940 he could place a value of $29,900 on his prospective lifetime earnings.

"The prospect of an extra $2,500 would be his personal dividend from a longer working lifetime," Dr. Dickinson says in an article, "Dividends From The Quest For Health," appearing in the current issue of Hygeia, the health magazine of the American Medical Association.

"The young man of 1900 might very likely have died from tuberculosis, but modern medicine, better and more food, better housing, x-rays, a modern sanatorium and modern drugs enabled the vast majority of young men in 1940 to be free from anxiety regarding such a fate." Dr. Dickinson says, adding:

"A man or woman, aged 35, earning $2,470 in 1900, could have placed a value of $25,000 on his prospective lifetime earnings (discounted at 2½ per cent per annum); a person of the same age in 1940 would value his future earnings at $26,200, a gain of $1,200. Death due to pneumonia might have stopped the earning period of this man or woman, aged 35 in 1900, but better hospitals, diagnosis and nursing, the discovery of sulfa drugs and penicillin, will prolong the earning period for a worker who attained age 35 in 1940."

"Now that these gains from longer life have been given an economic value in dollars," Dr. Dickinson says, "we can review this never-ending quest for health serenely confident that health work pays most, all or more than it costs.

"The human race has come a long way since the heyday of the Roman Empire. . . . Life expectancy at birth for an upper-class Roman was about a quarter of a century. An old Roman, statistically speaking, was someone 35 or 40 years of age."

Dr. Dickinson explains that a white child born in the United States in 1900 had a life expectancy of 49 years, while at the present time life expectancy at birth is approximately 65 years.

"It would be difficult to list all the expenditures made by society in the attainment of longer life," the article says.

"Most people think modern hospital costs head the list. Think also of the quest for better and more food; that includes the efforts to develop better pure food and drug laws, the work in the many branches of agriculture and chemistry to improve our food and in the study of nutrition and related subjects. Longer life results in part from better and safer housing. Here we find that we are indebted to the construction industry, the fire insurance companies, those who set up the building codes for our cities, engineering research of many types and kinds, and doubtless many other related groups. After food and shelter comes clothing with its contribution to longer life and all the people who are engaged in creating and producing better clothing adapted to our changing environment are engaged in this quest for health.

"Far forward in the vanguard of those engaged in this quest for health are the life insurance companies; not only in their medical examinations, in their health education work, but in the provision for dependents, they have made a great contribution. In providing annuities they have undoubtedly added to the life expectancy of older people who know that they can not outlive their income from the annuities. The pensions provided by the Social Security Act will doubtless prolong life after retirement.

"In this quest the people in the natural and physical sciences are playing a great role with numerous important discoveries. The people engaged in the public health services of our state, federal and local units are bringing the gospel of health to many. Also, at many places and levels in the educational system we find new stress on health; while we're thinking about it, let us

not forget the traffic policeman who, despite our frequent lack of appreciation, is really trying to reduce one of the great scourges of the mechanical age, accidental death. Although he hurts us sometimes, the dentist has added much to our comfort and our health and has contributed in many ways to medical progress.

"So many are the people and so varied are their contributions that those engaged in this quest for health resemble the various musicians in a great symphony. The general medical practitioner waves the baton, the medical specialist occupies the first violinist's chair and the nurse sits in the wings off the stage; the others play the different instruments. Now that we can place an economic value on the joint efforts of these people in producing longer life, who can say that the price of admission to this 'symphony' is too great? Who can say that all of the costs involved in the tremendous outlay to prolong life are excessive? Health work pays! But far sweeter than the jingling of money saved or more money earned is the message that you and I can enjoy more years of life, liberty and the pursuit of happiness."

PEDIATRICIAN TELLS HOW TO PREVENT WHOOPING COUGH IN INFANTS

"Whooping cough, the bane of infancy and early childhood, is preventable," according to the well-known pediatrician, Louis W. Sauer, of Evanston, Ill., writing in the current issue of Hygeia, health magazine of the American Medical Association.

The two ways in which this can be accomplished, writes Dr. Sauer, are by avoiding exposure and by protecting all infants with injections of three doses of potent vaccine soon after the age of six months.

He points out that "whooping cough is more prevalent and causes more deaths in children under two than do the three other preventable contagious childhood diseases—smallpox, diphtheria and scarlet fever—combined. In recent years, somewhat less than 200,000 whooping cough cases and 3,000 deaths have been reported annually."

HEADACHES RESULTING FROM TENSION RAPIDLY RELIEVED WITH SEDATIVE

Sodium amytal, a sedative, will relieve such symptoms as headache resulting from tension or anxiety within one to five minutes when injected into the veins, according to three New York doctors writing in the current issue of the Archives of Neurology and Psychiatry, published by the American Medical Association.

The authors—Capt. Samuel Susselman and Capt. Fred Feldman, Medical Corps, Army of the United States, and S. Eugene Barrera, M. D., Albany, N. Y.—state that when symptoms are persistent and no organic cause can be discovered, the patient should receive an injection of sodium amytal. They claim that this sedative is of diagnostic value because it is a quick method of separating symptoms of organic disease from tension symptoms.

In more than 80 patients, treated over a period of nine months, the hospitalization period was shortened for many because of the use of this sedative.

"The patient in whom the test is clearly successful will have no residuum of distress but will express, often spontaneously, great relief and complete freedom from pain and a feeling of well-being," according to the physicians. They state that "this rapid lifting of discomfort is especially impressive to both patient and physician in cases of long-standing headache, which have remained unrelieved for months, or even years."

The authors point out that not only will this sedative relieve symptoms due solely to tension but it also will bring relief to patients with organic disease whose symptoms have been intensified by tension and anxiety.

U. S. PUBLIC HEALTH SERVICE PROVIDES PROOF DEMEROL IS ADDICTING DRUG

More and more evidence is being accumulated at the United States Public Health Service Hospital at Lexington, Ky., to show that Demerol is an addicting drug.

Three cases illustrating addiction to Demerol are reported in the December 28 issue of The Journal of the American Medical Association by Herbert Wieder, M. D., Assistant Surgeon (R), United States Public Health Service, Lexington.

Dr. Wieder points out that Demerol "should be regarded as an addicting drug in the same class as the opiates."

Demerol, which was discovered in Germany, is under federal narcotic control.

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BACKGROUND

OVER THREE DECADES OF CLINICAL EXPERIENCE

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CLOSURE OF ABDOMINAL INCISIONS

T. BRANNON HUBBARD, M. D.

Montgomery, Alabama

Fifty years ago, the block where the First Baptist Church in Montgomery now stands —between Perry and Lawrence Streets— was owned and occupied by an old man by the name of Huzzy, reputed to be wealthy. Mr. Huzzy wore a frock coat and silk hat which he had worn continuously for many years. When asked why a man of his means did not buy a new hat sometimes, he replied, "What's the use? I have had this hat forty years and it has been in and out of style seven times."

So it is with many surgical procedures. Naturally, when surgeons began to use ligatures and to suture wounds, ordinary sewing thread such as that used by their wives and tailors would be employed. But that silk, linen, and cotton were not satisfactory was evidenced by the fact that as early as 900 A. D. Rhazes of Bagdad used harp strings to close abdominal wounds.

In the beginning of modern surgery, that is, in the latter part of the nineteenth century, unabsorbable sutures were used, abdominal incisions being closed by through and through sutures of silk. I have always thought that the dread patients still have of the removal of sutures dates back to these times. Although silk or cotton could be more easily sterilized, the early surgeons of the antiseptic and aseptic era soon turned to catgut. For instance, Gerster in his book published in 1890 says, "Well-prepared catgut of different thicknesses will answer every purpose for ligatures and sutures." Dr. John A. Wyeth, whose stature adorns the Capitol grounds in Montgomery, states in his textbook on surgery published in 1892: "Catgut has practically superseded all other substances as a ligature. The conditions which would justify the application of a silk, metal or any non-absorbable ligature to an artery are rarely present."

So to most of us who received our training in the early decades of this century, catgut was the material used for all buried sutures and ligatures, despite the fact that in the beginning catgut had to be sterilized by chemicals which naturally made it more irritating to the tissues and did not destroy spores. The manufacturers have now perfected methods whereby catgut can be thoroughly dehydrated and heated to 300 degrees long enough to destroy all bacteria and spores.

Although catgut was generally used throughout this country, Halsted in Baltimore developed a meticulous technic in operating, and employed fine silk sutures. The men at Johns Hopkins and some in Boston have continued to use silk sutures and ligatures; but throughout the country in general most surgeons used catgut whenever the material was buried in the tissues.

The revival of the use of non-absorbable suture material came about in a rather unusual manner. In 1920 Dr. F. L. Meleney[1] went to China to work with Dr. Adrian Taylor who followed Halsted. When Meleney returned to this country he experimented with the effects of different substances on

Read before the Association in annual session, Birmingham, April 16, 1946.

1. Meleney, F. L.: Infection in Clean Operative Wounds; 9 Year Study, Surg., Gynec. & Obst. 60: 264-276, Feb. (No. 2A) '35.

the tissues and his experiments showed that there was very much less reaction of the tissues to silk than to catgut. Following Whipple, Meleney and the men at Presbyterian in New York, surgeons started again using silk. Then a few years ago Dr. Alton Ochsner[2] and his co-workers with their research showed that in many respects cotton thread is better than silk. So now some of the younger men present think no doubt that silk or cotton is the only material justified as sutures.

The old silk hat of Halsted or even that of Ambrose Pare' is again in style!

The chief advantages of silk and cotton are: first, they do not produce the same amount of leucocytic reaction, and fibroblasts grow earlier thus hastening the healing of the wound. Second, the tensile strength of cotton and silk does not decrease with the same rapidity as does catgut when buried in the wound.

The disadvantages of cotton are that, in the small sizes advocated by its users, the initial tensile strength is very slight, making the handling of it difficult and precluding the use of continuous sutures. The application of interrupted sutures 0.5 cm. apart and using such a soft and delicate material as fine cotton thread make the suturing of a wound in most surgeon's hands more time-consuming than when catgut is used.

Although Ochsner, Thoreh and other users of cotton state that persistent sinuses, with the working out of sutures, practically never occur, I am sure that it is the factor which has in the past deterred most surgeons from using silk and will deter many in the future from using cotton.

Ochsner brings out the point that cotton is so much cheaper than catgut. My catgut bill last year was $491.00, while for cotton, according to Ochsner's figures, it would have been $12.50. However, if each of 500 operations required fifteen minutes longer, time consumed would have been 125 additional hours on the part of the surgical team and the anesthetist, and this I value at far more than $480.00.

Suffice to say that whether one uses catgut, silk or cotton, the nature of the suture material is not in most cases responsible for bad results in wound healing, with the complications of infections, herniation and disruption.

An abdominal incision should give adequate and, if possible, direct exposure of the organs to be operated upon, but if a strong wound is to result one must pay attention to the nerve supply of the muscles and attempt to avoid cutting across the fibers of the aponeuroses. For this reason the commonly used McBurney incision is an ideal one. The fibers of the external and internal oblique and transversalis are separated, not cut, and, unless violent retraction is used, no nerves are injured.

In reporting 500 cases in which early ambulation was employed, Nelson[3] states that the large majority were appendectomies and gives the credit to cotton sutures. If one closes the peritoneum and the skin, I doubt if any other suturing would be necessary and all patients could walk back to their rooms.

Incisions along the outer border of the rectus, although in some cases, particularly those with wide costal arches, they give easier approach to the gallbladder and are sometimes necessary in dealing with lesions of the right and left colon, must necessarily injure the nerves supplying the rectus muscles with their subsequent paralysis and the production of a hernia.

In most abdominal work an incision, either in the midline or slightly to the right or left, is employed. Such an incision does not injure any nerves but its disadvantage is that the aponeurosis of the transversalis and external rectus run almost directly across the incision so that sutures can easily pull out. Particularly is this the case in the upper abdomen where it may require a full 30 to 50 pounds to bring the edges of the wound together.

In 1938 a young man came to me who had been operated on in Atlanta for suppurative appendicitis some six months before. A right rectus incision had been made. He had a wide separation of the muscles and two fecal fistulae in which one could insert a finger. I dissected the muscles free around the scar, closed the fistulae, and then

2. Dixon, J. L., and Ochsner, A.: Cotton Sutures and Ligatures, Bull. Tulane M. Fac. 3: 57-74, Aug. '44.

3. Nelson, E. W., and Collins, C. G.: Cotton Suture Material and Early Ambulation in Gynecology and Obstetrics, Surgery 12: 109-114, July '42.

brought the free edges of the abdominal wall together with steel wire. Again Mr. Huzzy's silk hat came into style!

Marion Sims had used not steel but silver wire in closing vesico-vaginal fistulae in his slave women in 1850. In the young man that I speak of I was amazed to find that the wire sutures could be left in for four weeks without any infection around them and with very little cutting of the tissues. So that, despite the fact that there was some slight fecal drainage after a couple of weeks, the wound healed nicely and there has been no further hernia.

Wayne Babcock and others have used fine wire sutures buried in the tissues, and during the War tantalum wire was used extensively in nerve suture. The trouble with the employment of wire sutures routinely is that it is so difficult to avoid injuring one's gloves and fingers. Since the experience recounted above, I have used through-and-through figure of eight wire sutures in upper abdominal wounds, and in lower abdominal wounds when dealing with malignancies or where there is any undue tension on the incision. No. 30 or 32 stainless wire is passed through the sheath of the rectus, through the edges of the transversalis fascia and peritoneum, and out again on the other side. Then, if the wires are lifted up, the transversalis and peritoneum come together and can be easily closed with a continuous suture of fine plain catgut. I use a double suture since it facilitates closure, and the needle cannot come off. A few interrupted chromic sutures are then placed in the sheath of the rectus. The wires are then crossed and brought out through the skin, passed through a piece of rubber tubing and twisted. Usually three or four wire sutures are all that are necessary. The wire sutures can usually be left in until the patient is ready to leave the hospital. In the meantime, the patient may sit up in bed or in a chair with no fear of wound disruption.

The object of this paper was to briefly discuss the merits and faults of different kinds of suture material; and to present a method of closure, particularly adapted to upper abdominal wounds, that I have found very satisfactory.

EXSTROPHY OF THE BLADDER

PRESENTATION OF A CASE

SAMUEL K. COHN, M. D.
JAMES W. HEADSTREAM, M. D.
And
BRUNO BARELARE, M. D.
Birmingham, Alabama

Exstrophy of the bladder is one of the most unfortunate of congenital anomalies. Its cause is not definitely known but the most commonly accepted theory is that it is due to an arrest in embryonic development. It is a rare condition and is said to occur once in 50,000 births. Males are more frequently afflicted than females, in the ratio of 7:1.

In exstrophy of the bladder the anterior wall of the bladder and the corresponding portion of the anterior abdominal wall are absent. The inner surface of the posterior bladder wall, partially everted, protrudes on the abdomen. The ureters expel urine externally, causing constant seepage and dribbling. The symphysis is separated from 2 to 8 centimeters, and the anterior part of the pelvic girdle is absent. Due to the pelvic deformity a child with this anomaly has a peculiar waddling gait. As a result of the abnormality of the bony structures, the rectus muscles are widely separated below and are inserted into the pelvic bones by passing obliquely outward. Epispadias is always present.

The condition is frequently associated with other developmental defects, such as spina bifida, imperforate anus, hare-lip, or hydrocephalus. As the children with exstrophy of the bladder become older they lead a miserable existence, become social outcasts, and life becomes almost intolerable because of the odor and constant dribbling of urine.

From the Department of Urology, Medical College of Alabama.

About fifty per cent of these patients die in infancy or early childhood. Upper urinary tract infection is a frequent cause of death. Relatively few of those not successfully corrected pass the twentieth year. Malignant degeneration of the bladder is not an uncommon finding in the few that reach middle age.

The treatment of this anomaly is entirely surgical. A thorough search for other congenital anomalies should be made. Careful preoperative examination is essential to determine structural and functional changes in the kidneys and ureters, since such changes may have an important influence on postoperative results. Plastic operations to close the defect and restore the bladder function have been described by Young[1] and others, but these procedures have been generally unsatisfactory. The most satisfactory treatment has been the transplantation of the ureters into the large bowel, removal of the exstrophied bladder, and the plastic correction of the deformity of the external abdominal wall and genitalia.

REPORT OF CASE

A seven year old colored male child (J. H. Hospital #12725) wearing a dress, entered the Urology Service of the Jefferson-Hillman Hospital of the Medical College of Alabama on January 16, 1946. The mother stated that the child had been wetting himself since birth. The child was thought to be a hermaphrodite and was brought up as a girl, because wearing a dress was more practical in view of the constant dribbling of urine. He was the first of five children. There was no history of other anomalies within the family. He was looked upon as a "freak" in his community, other children ridiculed him, and he had been unable to attend school.

Physical examination revealed a well nourished male child with a waddling gait. Examination was essentially negative except for the following: On the lower anterior abdominal wall just superior to the pubis, there was a bulging, reddened moist mass approximately five centimeters in diameter protruding approximately two centimeters anteriorly and extending superiorly to within two centimeters below the umbilicus. (See figures 1, 2.) The protruding structure was identified as the posterior wall of the bladder, and the trigone, with two ureteral orifices expelling urine externally, was noted at the lower margin of the mass. The penis was completely epispadiac. The mucous membrane of the urethra was exposed and the verumontanum and ejaculatory duct openings were recognized. The symphysis was separated four centimeters. There was a wide separation of the rectus muscles and fascia, producing a ventral herniation of the bladder below the umbilicus. The scrotum was rudimentary and contained apparently normal testicles. Blood and urine examinations were within normal limits. An excretory urogram revealed normal structure and function of the upper urinary tract. (Fig. 3.)



Fig. 1. Photograph of patient showing the exstrophied bladder and epispadiac penis.

1. Young, H. H.: Genital Abnormalities, Hermaphroditism and Related Adrenal Diseases, The Williams & Wilkins Co., Baltimore, 1937, pp. 457-472.



Fig. 2. Close-up view of bladder and genitalia.

On January 24 the patient was begun on preoperative succinyl sulfathiazole, grams one, every four hours. On January 28 the first stage of transplantation of the ureters into the sigmoid colon was performed. A trough three centimeters in length was made on each side of the bowel wall down to the mucosa. The corresponding ureter was placed within each of the troughs, and the bowel muscle sutured over the ureter. The lumen of the bowel was not entered and the ureters were left attached to the bladder, after the method of Jewett.[2]

After a period of four weeks (Feb. 25), a second stage operation was performed, again following preoperative preparation with

2. Jewett, H. J.: Uretero-Intestinal Anastomosis in 2 Stages for Cancer of the Bladder, Modification of Original Technique and Report of 33 Cases, J. Urol. 52: 536-562 (Dec.) 1944.



Fig. 3. Excretory urogram on admission. Upper urinary tract normal in structure and function.

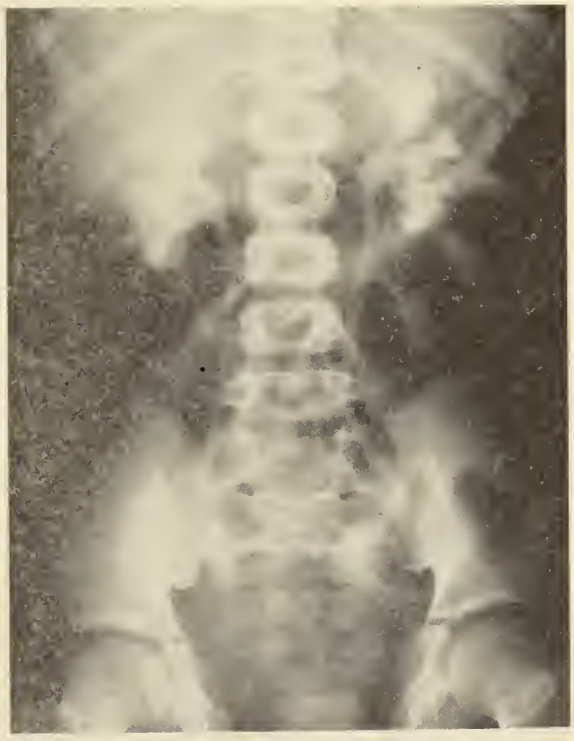


Fig. 4. Excretory urogram shortly after ureters transplanted to bowel. Note calyceal dilatation.

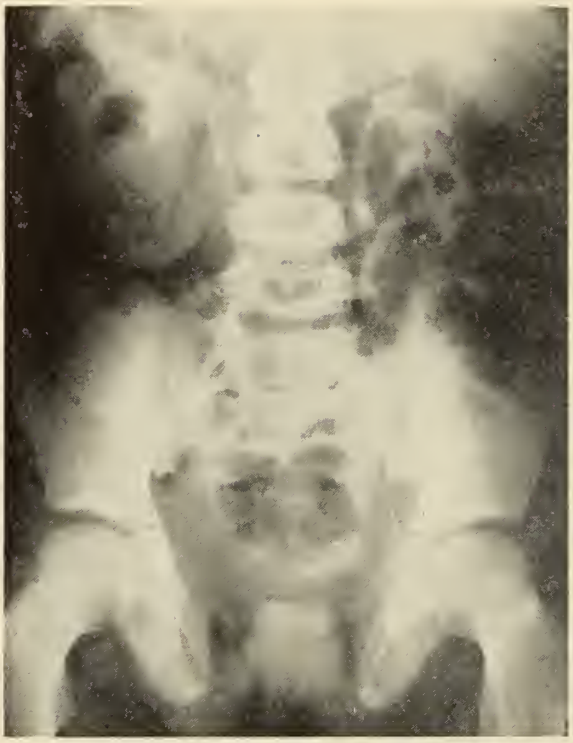


Fig. 5. Excretory urogram 2 months later. The dilatation has practically disappeared. Note symphysial separation.

succinyl sulfathiazole. In this stage the stoma between the left ureter and sigmoid colon was made using a modified Coffey #1 technique.

On March 18 a similar procedure was performed to establish the stoma between the right ureter and sigmoid colon.

The patient had no difficulty in controlling his urine from the anal opening postoperatively. He expelled urine with a bowel movement approximately two times daily. An excretory urogram on April 2 revealed some hydronephrosis and hydro-ureter bilaterally. (Fig. 4.)

The patient was discharged April 7 in good condition, with instructions to return in two months for removal of the bladder.

The child was again admitted to the hospital June 7, 1946 and appeared in excellent condition. He had dressed as a boy during the interval, had begun school, and was apparently enjoying a normal child's life. Urinary output was good. He could control his urine voluntarily via the rectum without difficulty. An excretory urogram revealed no abnormality of the upper urinary tract. (Fig. 5.) The dilatation noted on previous pyelographic study had disappeared during the two month period. On June 17 a complete cystectomy was performed, and the defect in the anterior abdominal wall was repaired. The rectus fascia was brought together in the midline, after counter-incisions had been made on both sides.

All operations were performed under ether anesthesia. The postoperative course following each stage was uneventful.

The patient was discharged July 15 in excellent condition, with the abdominal wound completely healed. (Fig. 6.) The blood nonprotein nitrogen was 32 mgm. per cent. He will be followed at intervals in the Urology Out-Patient Department. It is contemplated to repair the epispadias after the child reaches puberty.

SUMMARY

Exstrophy of the bladder is briefly discussed. A case of complete exstrophy of the bladder, with successful surgical correction, is presented.



Fig. 6. Condition on discharge from hospital. Anterior abdominal wall firmly healed. Surgical correction of epispadic penis to be done at puberty.

"The most essential service rendered by tuberculosis hospitals to their respective communities is the effective control of the disease."

THE USE OF QUANTITATIVE SEROLOGIC TESTS IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS

HOWARD L. HOLLEY, M. D.

Birmingham, Alabama

The recent introduction of intensive methods for the treatment of syphilis has resulted in the widespread use of quantitative serologic tests for syphilis. The test is not only applicable in the treatment and post-treatment period of intensive syphilotherapy, but it also aids greatly in the problems arising in the diagnosis of syphilis.

A quantitative test is an effort to determine the amount of reagin in a serum. The test is performed on serial dilutions of the serum. Each dilution of the serum is handled as if it were a single specimen of whole serum and the standard qualitative test is carried out with each dilution. The reagin titer is then expressed as the highest dilution that gives a positive reaction. The quantitative Kahn test[1] is the most commonly used procedure. The titer is recorded in Kahn units which is obtained by multiplying by four the maximal dilution of the serum giving a positive reaction. Serum giving only a partial reaction in the undiluted state is expressed in titers below four units.

A reagin titer that shows marked increase on periodic testing usually indicates recently acquired or relapsing syphilis, while that of a stationary titer is found in syphilitic infection of longer duration. Further, a rapidly decreasing titer indicates therapy, or, if no treatment has been administered, may represent a false positive reaction.[2, 3] It may be stated here that the height of the reagin titer has absolutely nothing to do with the amount of infection present, for in a patient with a reagin titer of four units the infection may be just as heavy as one in which there is a reagin titer of 1,000 units. It should be noted, therefore, that the reagin titer as such, considered as an isolated finding, is not a direct expression of the degree of spirochaetal invasion, nor of the immunity to the infection.[4] A single titered test, whether the reagin content is high or low, therefore, in general has little prognostic or diagnostic value.

EARLY SYPHILIS

Primary syphilis, in which the *Spirochaeta pallida* can not be found by repeated darkfield examination, often offers a diagnostic problem. In these cases, weekly quantitative serologic tests will show a rapid rise in the reagin titer. Stokes[5] has shown that only fifty per cent of patients who have had a primary lesion of more than five weeks' duration have positive darkfield examinations. Suspicious lesions that are darkfield negative and in which repeated quantitative serologic tests for syphilis show a stationary positive titer usually represent non-syphilitic lesions with a co-existent latent syphilitic infection. Occasionally patients with lesions of the other venereal diseases: i.e., lymphogranuloma inguinale, granuloma inguinale, or chancroid, will have low serologic reagin titers. This is usually due to a biologically false positive reaction elicted by the non-syphilitic infection.

Recent advances in the treatment of gonorrhea with relatively small doses of penicillin[6] have resulted in making a simultaneously acquired syphilitic infection a resultant problem in diagnosis. Periodic follow-up of these patients with quantitative serologic tests for syphilis over a one hundred and twenty day period will assist greatly in determining the presence or absence of coexistent syphilitic infection. The recom-

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1. Kahn, R. L.: Technique of the Standard Kahn Test and of Special Kahn Procedures, Ann Arbor, University of Michigan Press, 1942.

2. Kahn, R. L.: Facts Regarding Quantitative Kahn Reactions, Ven. Dis. Inform. 20: 255-257, 1939.

3. Lorenz, W. F.: Clinical Use of Quantitative Blood Tests for Syphilis, Wisconsin M. J. 37: 281-286, 1938.

4. Moore, J. E., and Eagle, H.: Quantitative Serologic Tests for Syphilis; Its Variability, Usefulness in Routine Diagnosis and Possible Significance; Study of 1665 Cases, Ann. Int. Med. 14: 1802-1814, 1941.

5. Stokes, J. H.: Modern Clinical Syphilology. Second Section, Page 1400, Philadelphia, W. B. Saunders Company, 1934.

6. Romansky, M. J., Murphy, R. J., and Rittman, G. E.: Single Injection Treatment of Gonorrhea with Penicillin in Beeswax-Peanut Oil, J. A. M. A. 128: 404, 1945.

mended procedure in these cases is weekly serologic tests for syphilis for the first month, then bi-monthly for the second month, then monthly for the remaining period. Those patients with rapidly rising reagin titers, even though they have no visible lesions, must be considered to have acquired a syphilitic infection along with gonorrhea.

CONGENITAL SYPHILIS

An infant born of a syphilitic mother often presents a problem in diagnosis. The serologic test for syphilis in a newborn infant is of inconclusive value inasmuch as it has been shown that maternal syphilitic reagin may be transmitted to the fetal blood stream by way of the placenta. McKelvey and Turner[7] showed in their work that fifteen per cent of positive cord serologic tests for syphilis revert to negative, while a like percentage of negative tests become positive later in infancy. They showed further that those whose serology is negative at the end of six months usually are free of the infection. Thus, the use of frequent quantitative serologic tests for syphilis in the first six months of life will show the disappearance of maternal reagin or the appearance of the infant's own antibodies in the blood stream. It has also been shown that quantitative testing of the infant and mother may be of diagnostic importance, inasmuch as the transmitted reagin in the infant is equal to or less than that of the mother.[8] A higher titer in the infant's serology than in the mother's usually indicated the presence of active infection in the former.

RELAPSING SYPHILIS

The foremost value of the quantitative test lies in its use as a means of evaluating antisyphilitic treatment. The serologic follow-up, which makes possible the early recognition of infectious relapses, takes on greater importance since the advent of rapid therapy of syphilis. Follow-up serologies are taken at monthly intervals for one year, then every three to four months for the second year, after that yearly for three years. In these cases a quantitative serologic test for syphilis offers a method for early recognition of treatment failures, inasmuch as the test frequently gives rise in the reagin titer in early relapsing syphilis even though a clinical lesion can not be demonstrated. It should be cautioned, though, that cases of early relapsing syphilis have been reported in cases with negative serologic tests.[8] Ocular and central nervous system relapses occasionally show no change in titer. A spinal fluid examination should be performed after treatment and at the end of the six-month period to rule out central nervous system relapse.

SERORESISTANT SYPHILIS

In treating patients who have had strongly positive serologic tests for syphilis, but have had adequate therapy, and later have either a negative or a weakly positive serologic test, the problem of determining the presence of a relapse often faces the physician. Quantitative testing of the serum for syphilis will reveal in most cases an extremely low titer, which remains so regardless of the amount of therapy. Daily variations in the sensitivity of the serologic tests offer the best explanation for the often varied serologic pattern in these cases.[9] Spinal fluid examinations should always be performed to eliminate a central nervous system involvement.

FALSE POSITIVE AND NEGATIVE REACTIONS

This test is perhaps the most important procedure available in distinguishing between true positive and biological false positive reactions. A repeatedly positive reaction is generally accepted as evidence of syphilitic infection, though other diseases may produce a reagin in the blood serum which gives a positive serologic reaction.[10] Some of the more important of these are leprosy, malaria, smallpox vaccination, infectious mononucleosis and some upper respiratory infections. It is the recognition of these conditions that may be extremely difficult. Monthly examination of the serum of one suspected of having a false positive

7. McKelvey, J. L., and Turner, T. B.: Syphilis and Pregnancy; Analysis of Outcome of Pregnancy in Relation to Treatment in 943 Cases, J. A. M. A. 102: 503-510, 1934.

8. Moore, J. E., et al: The Modern Treatment of Syphilis. Second Edition, Page 674, Springfield, Ill., Charles C. Thomas, 1941.

9. Mohr, C. V., and Smith, C. A.: On Supposed Variations of Reagin Content of Syphilitic Serum, Am. J. Syph., Gonor. and Ven. Dis. 24: 322-329, 1940.

10. Moore, J. E., Eagle, H., and Mohr, C. F.: Biological False Positive Serologic Tests for Syphilis; Suggested Method of Approach to Their Clinical Study, J. A. M. A. 115: 1602-1606, 1940.

reaction will show a rapidly falling titer in the absence of treatment. This is usually accepted as conclusive evidence of the presence of non-syphilitic reagin. The serologic verification tests for syphilis[11] have not proven conclusively in one way or the other in distinguishing these conditions from true syphilitic infections. A single titer determination is of no value in recognizing false positive reactions, and repeated quantitative serologic tests for syphilis are always indicated. A biological false positive reaction usually gives a low titer, but the opposite may be the case as in false positive reactions in children with acute febrile illness.[10] Even with a slight upward trend of the titer, one should be suspicious, as it is possible that it may be due to the intercurrent infection and not an actual increase of the syphilitic reagin. These cases may be verified by repeated quantitative serologic testing taken at frequent intervals.

Occasionally false negative reactions or the prozone phenomenon may occur. The exact mechanism of occurrence of this phenomenon has not yet been adequately explained. It appears in a few (1 to 1,000)[12] strongly positive serums that give negative or doubtful reactions when whole serum is used in the testing, but becomes strongly positive when dilutions of the same serum are employed. Eagle[13] has shown that this phenomenon is less likely to occur in the flocculation test than in the complement fixation test. In cases with strong clinical evidence of syphilis and repeated doubtful serologic reactions, serial dilutions will often reveal the true reagin content of the serum. For example, the test will be negative in a 1:1 dilution, whereas it will be strongly positive in a 1:8 dilution.

SUMMARY AND CONCLUSIONS

The serologic test for syphilis is the most important and widely used laboratory examination for syphilis. This serologic reaction depends on an antibody-like substance elaborated within the tissues of the host in response to the infectious agent. The substance formed in response to *Treponema pallidum* is known as reagin. A repeatedly positive reaction can usually be accepted as evidence of spirochaetal invasion, though other diseases may produce a reagin which gives a positive serologic reaction.

Qualitative tests are the most generally used, but they give no information as to the amount of the reagin present. Quantitative tests performed on serial dilutions of serum indicate the amount of this reagin present. The trend of the titer is essential in the early diagnosis of darkfield negative primary and congenital syphilis and in the follow-up study of patients who have had rapid treatment for syphilis to determine whether a cure or a relapse can be anticipated. Repeated periodic serologic tests for syphilis are the most important procedures available in recognition of biological false positive reactions in non-syphilitic patients. The test is also of value in determining the presence of syphilitic reagin in patients with strongly positive serum, who give weakly positive reactions on testing with high concentrations of the serum.

11. Kahn, R. L.: Verification Test in Serology of Syphilis, J. Lab. and Clin. Med. 28: 1175-1186, 1943.

12. Greene, R. A., and Breazeale, E. L.: Zone Reactions in the Kline Test, J. Lab. and Clin. Med. 25. 104, 1939.

13. Eagle, H.: The Laboratory Diagnosis of Syphilis, St. Louis, C. V. Mosby Company, 1937, p. 440.

Transthoracic Vagus Resection—The most serious complication of vagus resection has been gastric retention associated with dilatation of the stomach and decrease in peristaltic activity. In the nine patients who had a functioning gastroenterostomy this was no problem. Six others had a gastro-enterostomy or pyloroplasty at the time of vagotomy because of obstruction phenomena. Gastric retention following vagotomy was so marked in four patients as to require a secondary operation at a subsequent date. Approximately one-half of the remaining thirty-one patients complained of a sensation of fullness following meals and occasional regurgitation of food.

A less serious complication was diarrhea. This occurred in twenty-seven patients following operation but developed only when the patients began to eat a normal diet for the first time. This varied from two or three loose stools to eight or ten watery movements per day without blood or mucus, accompanied occasionally by lower abdominal discomfort. In nineteen this was transient, lasting only a few days. The remaining eight had an intermittent diarrhea, in some cases persisting for over a year after operation. There was no constant relationship between achlorhydria and the diarrhea, nor did the administration of acid have any appreciable effect in controlling it. X-rays of the stomach, small intestine, and colon have shown no correlation to the diarrhea. The stools did not resemble those of steatorrhea, and stool fat determinations on one patient were within normal limits.—*Smith et al., South. M. J., Jan.* '47.

PRACTICAL CONSIDERATIONS IN THE TREATMENT OF EARLY SYPHILIS

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Today the physician continues to face a definite problem as he contemplates the most practical way in which to treat a patient with syphilis. If he follows the established routine method, utilizing alternating courses of arsenic and bismuth, the patient not only finds the injections painful and disagreeable but the treatment period is prolonged and a majority of the patients never complete an adequate course of therapy. More recently there have been evolved schedules involving the use of arsenic or arsenic and bismuth with markedly shorter intervals between injections.[1, 2, 3, 4, 5] Most of the more rapid methods, however, have been beset with grave and sometimes fatal reactions. Within the last two and a half years, penicillin has seemed to answer most of the requirements demanded for the drug of choice in antisyphilitic therapy. Even this remarkable drug, however, has certain disadvantages. An attempt is made here to point out the comparative advantages and disadvantages of some of the better known antisyphilitic schema in use today.

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STANDARD ARSENICAL—BISMUTH THERAPY

From the reports of the Clinical Cooperative Group,[6] Moore,[7] Kampmeier,[8] and others, it has been contended that early syphilis should be treated with a minimum of thirty injections of arsphenamine and forty injections of insoluble bismuth, each drug being administered in alternating continuous courses at weekly intervals. Cole[9] suggested that if neoarsphenamine were substituted for arsphenamine, forty injections of neoarsphenamine and forty-four injections of bismuth should be administered. Moore[7] would increase the number of arsenical injections to seventy if mapharsen is to be used in place of arsphenamine, with the mapharsen being given twice weekly.

An acceptable minimal schedule for the treatment of early syphilis is shown in Table I.

It should be emphasized that this schedule represents minimal therapy only. As a general rule, treatment should be continued for one year after all symptoms and signs of syphilis are no longer present. If the patient is seroresistant, treatment should be continued for not less than two years. A negative serologic test for syphilis is not in itself indication for cessation of treatment. It is desirable that the physical examination, spinal fluid studies, and fluoroscopic examination of the heart and aorta be normal before placing the patient upon a vacation from further therapy. In addition to meticulous routine studies, no patient can be considered to have had an adequate examination until the spinal fluid has been studied and until the heart and aorta have been examined by fluoroscopy.

1. Leifer, W., Chargin, L., and Hyman, H. T.: Massive Dose Arsenotherapy of Early Syphilis by Intravenous Drip Method: Recapitulation of the Data (1933 to 1941), J. A. M. A. 117: 1154-1160 (Oct. 4) 1941.

2. Thomas, E. W., and Wexler, G.: Rapid Treatment of Early Syphilis. Report of Two Hundred and Eighty Treatment Courses with Mapharsen Alone and Five Hundred and Forty-nine Treatment Courses with Mapharsen Combined with Fever, Arch. Dermat. & Syph. 47: 553-568 (April) 1943.

3. Schoch, A. G., and Alexander, L. J.: Intensive Arsenotherapy of Early Syphilis: Follow-up Report on the Ten-Day Syringe Method of Treatment, Arch. Dermat. & Syph. 46: 128-129 (July) 1942.

4. Eagle, H.: The Treatment of Early and Latent Syphilis in Nine to Twelve Weeks with Triweekly Injections of Mapharsen. A Preliminary Analysis of the Results in the First 4,823 Cases, J. A. M. A. 126: 538 (October 28) 1944.

5. Turner, T. B., and Sternberg, T. H.: Management of the Venereal Diseases in the Army, J. A. M. A. 124: 133 (Jan. 15) 1944.

6. Moore, J. E.; Cole, H. N.; O'Leary, P. A.; Parran, T.; Stokes, J. H., and Vonderlehr, R. H.: Management of Syphilis in General Practice, Ven. Dis. Inform. Supplement No. 6, 1-61, 1938.

7. Moore, J. E.: The Modern Treatment of Syphilis, Springfield, Illinois: Charles C. Thomas, 1944.

8. Kampmeier, R. H.: Essentials of Syphilology, Philadelphia, J. B. Lippincott Company, 1943.

9. Cole, H. N.: The Use of Antisyphilitic Remedies, J. A. M. A. 107: 2123 (Dec. 26) 1936.

TABLE I
MINIMAL TREATMENT SCHEDULE FOR EARLY SYPHILIS

Day or Week	Arsphenamine	or Neoarsphenamine	or Mapharsen	with Insoluble Bismuth
Day 1	0.3 gms.	0.3 gms.	0.03 gms.	0.2 gms.*
5	0.4	0.45	0.04	0.2
10	0.4	0.6	0.06	0.2
Weeks				
3- 8	0.4	0.6	0.06	
9-11	0.4	0.6	0.06	0.2
12-17				0.2
18-27	0.4	0.6	0.06	
28-35				0.2
36-43	0.4	0.6	0.06	
44-53				0.2
54-59	0.4	0.6	0.06	
60-71				0.2
	36	36	36	42

*Calculated as metallic bismuth.

There is general agreement that in the treatment of early syphilis:

1. The first course should consist of an arsenical.

2. The first three and last three injections of the first course of arsenic should be accompanied by concomitant injections of bismuth.

3. The courses should be alternating and administered without rest periods.

4. The last course should consist of bismuth.

With the eighteen-month alternating-block system of continuous therapy in early syphilis, ninety per cent or more of the patients treated can expect a "cure."[10] The patients are handled as ambulatory patients and are treated without complete interruption of their daily activities.

Hahn[11] reviewed the deaths occurring over a twenty-seven-year period in the Johns Hopkins syphilis clinic. Of those patients with early syphilis treated with routine therapy (utilizing trivalent arsenicals), one death occurred per 2,800 patients treated. Only two cases of hemorrhagic encephalitis occurred following 270,000 injections of trivalent arsenicals when administered according to conventional treatment schedules. This mortality figure is considerably less than those figures given for rapid treatment methods which utilize arsenic. Fatalities with the five-day intravenous-drip routine ran as high as one per two hundred patients treated. The disagreeable reactions and the occasional technical difficulties associated with the administration of trivalent arsenicals are well known. Bismuth is not an ideal drug because of the discomfort associated with its administration and because of the possible development of gingivitis and other complications. Since the original conventional scheme has to be given over a period of approximately eighteen months, most patients treated in this manner have failed to complete their therapy. Nevertheless, until the advent of penicillin the conventional alternating-block system remained the treatment of choice for early syphilis.

THE ARMY TWENTY-SIX-WEEK SCHEDULE

In 1944 Turner and Sternburg[5] revealed that the U. S. Army had evolved a method of treating early and latent syphilis which had shortened the treatment period to twenty-six weeks. During this twenty-six-week period forty injections of arsenoxide were administered, with injections being given twice weekly during the first and last ten-week periods. Bismuth subsalicylate was administered weekly during the first to the sixth week, the eleventh to the sixteenth week, and the twenty-second to the twenty-sixth week. It would be of considerable interest to know the follow-up results to date of this therapeutic regimen in order that it might be evaluated.

THE EAGLE TRIWEEKLY REGIMEN

Eagle in 1944 reported upon the results obtained in treating 4,823 patients with early

10. Padget, P.: Long-Term Results in the Treatment of Early Syphilis, Am. J. Syph., Gonor. & Ven. Dis. 24: 692-731 (Nov.) 1940.

11. Hahn, R. D.: Antisyphilitic Treatment: Mortality Studies, Am. J. Syph., Gonor. & Ven. Dis. 25: 659-686 (Nov.) 1941.

and latent syphilis. These patients were given their treatment within a period of twelve weeks or less. Mapharsen was administered three times weekly with a dosage for each injection of approximately one milligram per kilogram, with no patient receiving more than eighty milligrams in a single dose. In addition, two-thirds of the patients received weekly injections of bismuth concurrently. There were thirty-nine serious reactions, and four of the patients died as a result of the treatment. His mortality figure was one per two thousand. He felt that of the patients receiving an average total of 1,600 milligrams of mapharsen, plus an average total of nine injections of bismuth, eighty-two per cent or more of these patients were "cured" according to follow-up examinations carried out not less than fifty weeks after the beginning of treatment. The significant advantages associated with this regimen are that it can be administered within three months and that it does not require hospitalization. The morbidity and fatality rates incurred, however, cannot be disregarded.

The use of arsenic or arsenic and bismuth in dosages adequate to cure early syphilis administered over treatment periods of less than two weeks has been shown to be contraindicated because of the high mortality rates (1:200).[12] Thus, the five-day intravenous-drip routine,[1] the multiple-syringe therapy of Thomas and Wexler[2] and of Schoch and Alexander,[3] and other similar regimens have been shown to be too dangerous for clinical use.

PENICILLIN IN SYPHILOTHERAPY

In view of numerous reports[13, 14] it was felt until recently that a total of 2.4 million units of penicillin was probably adequate minimal therapy for the treatment of early syphilis. This dosage was administered with 40,000 units being given every three hours intramuscularly for seven and one-half days.

The definite synergistic action of penicillin and mapharsen in the treatment of experimental syphilis has been pointed out.[15]

Schoch and Alexander[13] suggest the following routine for the treatment of early syphilis: not less than 2.4 million units of penicillin administered over a minimal period of seven and one-half days, with injections being administered not less often than every three hours day and night. They suggest in addition that patients receive either forty milligrams of oxophenarsen hydrochloride intravenously daily for eight days, or five injections of 0.2 grams each of bismuth subsalicylate in oil on alternate days, or both.

The routine method of treatment of early syphilis recently introduced in British Army hospitals[16] consists of the administration of 2,400,000 units of penicillin in seven and one-half days combined with ten daily injections of arsenic (oxophenarsine hydrochloride). Although arsenical reactions were rare, if they did occur the arsenical drug was discontinued and the penicillin total dosage was increased to 4,000,000 units. This change in treatment was put into effect because previous treatment regimens with 2,400,000 units of penicillin alone had resulted in a failure rate of eight per cent in 270 treated patients followed for six months.

Many recent reports have appeared in which other stages or types of syphilis have been favorably influenced with penicillin therapy. Goodwin and Moore[17] stated that metal chemotherapy for the syphilitic mother should be abandoned, and that penicillin should be used in its stead. In their opinion, not less than 2.4 million units of penicillin should be administered, with the total duration of treatment lasting for not less than seven and one-half days. They felt that the results for this form of treatment in the prevention of prenatal syphilis were far su-

12. Eagle, H., and Hogan, R. B.: An Experimental Evaluation of Intensive Methods for the Treatment of Early Syphilis, III, Clinical Implications, Ven. Dis. Inform. 24: 159-170 (June) 1943.

13. Schoch, A. G., and Alexander, L. J.: Treatment of Early Syphilis with Penicillin, J. A. M. A. 130: 696-698 (March 16) 1946.

14. Committee on Medical Research and the U. S. Public Health Service: The Treatment of Early Syphilis with Penicillin, J. A. M. A. 131: 265-271 (May 25) 1946.

15. Eagle, H.; Magnuson, H. J., and Fleischman, R.: The Synergistic Action of Penicillin and Mapharsen (Oxophenarsine Hydrochloride) in the Treatment of Experimental Syphilis, Ven. Dis. Inform. 27: 3 (Jan.) 1946.

16. (Editorial) Foreign Letters, Penicillin Treatment of Syphilis in the British Army, J. A. M. A. 130: 963 (April 6) 1946.

17. Goodwin, M. S., and Moore, J. E.: Penicillin in Prevention of Prenatal Syphilis, J. A. M. A. 130: 688-694 (March 16) 1946.

perior to those obtained with any other form of treatment in the past.

The treatment of neurosyphilis with penicillin has been undertaken by numerous groups,[18, 19, 20] and although the preliminary reports are favorable it has been admitted that it is too early to draw permanent conclusions.

Favorable results have been indicated in the preliminary studies of the treatment of prenatal syphilis[21] and benign tertiary syphilis[22] with penicillin.

On May 4, 1946 an official statement regarding the use of penicillin in the treatment of syphilis was released by Heller and Moore.[23] They pointed out that during recent months the penicillin of some manufacturers was slightly less effective in the treatment of syphilis because of a slightly altered composition. In spite of this, *they felt that penicillin was still the best and safest drug available for the treatment of syphilis.* The Committee on Medical Research, the U. S. Public Health Service, and the Food and Drug Administration[24] published the following suggestions for the minimal treatment of syphilis as shown in Table II.

For the treatment of congenital syphilis, a total dosage of 100,000 to 400,000 units per kilogram body weight was suggested for infants and a total dosage of 60,000 units per kilogram body weight for older children,[24] with injections being administered every three hours and extending over a period of ten or fifteen days.[21] The combination of penicillin with arsenic and/or bismuth was discussed. These authorities emphasized

TABLE II
PENICILLIN TREATMENT SCHEDULE FOR SYPHILIS

	Total Units Penicillin	Number of Injections	Duration of Treatment	Units per Injection	Time Interval Between Injections
Seronegative primary syphilis	3.6 million	90	7½ days	40,000	2 hours
		60	7½ days	60,000	3 hours
Seropositive primary and early secondary syphilis	5.4 million	90	7½ days	60,000	2 hours
		60	7½ days	90,000	3 hours
Latent and late syphilis	3.6 million	90	7½ days	40,000	2 hours
		60	7½ days	60,000	3 hours
Parenchymatous neurosyphilis	10 million	100	12½ days	100,000	3 hours

that these suggestions are only tentative and that they are subject to revision within the near future.

It should be noted that, if treatment is instituted with penicillin, it should be administered only according to schedules that have been approved. Regardless of the dosage administered, hit-or-miss therapy with one or two daily injections of aqueous solutions of penicillin is to be condemned. The treatment of early syphilis with penicillin should not be undertaken by any physician who is not prepared to interpret and carry out the titered serologic tests, repeated examinations, and other specialized follow-up studies required in its management.

18. Callaway, J. L.; Noojin, R. O.; Flower, A. H., Jr.; Kuhn, B. H., and Riley, K. A.: The Use of Penicillin in the Treatment of Syphilis of the Central Nervous System, Am. J. Syph., Gonor. & Ven. Dis. 30: 110-124 (March) 1946.

19. O'Leary, P. A.; Brunsting, L. A., and Ockuly, O.: Penicillin in the Treatment of Neurosyphilis, J. A. M. A. 130: 698-700 (March 16) 1946.

20. Stokes, J. H.; Steiger, H. P.; Gammon, G. D.; Steele, W. H.; Beerman, H.; Ingraham, N. R.; Gyorgy, P.; Rose, E., and Lentz, J. W.: Penicillin Alone in Neurosyphilis, J. A. M. A. 131: 1-7 (May 4) 1946.

21. Ingraham, N. R.; Stokes, J. H.; Beerman, H.; Lentz, J. W.; Gyorgy, P., and Rose, E. K.: Penicillin Treatment of the Syphilitic Infant, J. A. M. A. 130: 694-696 (March 16) 1946.

22. Dexter, D. D., and Tucker, H. A.: Penicillin Treatment of Benign Late Gummatous Syphilis, Am. J. Syph., Gonor. and Ven. Dis. 30: 211-226 (May) 1946.

23. Heller, J. R., and Moore, J. E.: Official Statement on Penicillin in Syphilis, J. A. M. A. 131: 34 (May 4) 1946.

24. Committee on Medical Research, the U. S. Public Health Service, and the Food and Drug Administration: The Changing Character of Commercial Penicillin, J. A. M. A. 131: 271-275 (May 25) 1946.

DISCUSSION

The advantages associated with the administration of penicillin are well known. It has been shown to be markedly effective clinically. Comparatively, penicillin is remarkably safe and except for Herxheimer reactions other complications with penicillin are relatively mild.[25] The recent announcement, however, of the change occurring in the manufacture of penicillin greatly increases some of its disadvantages. The drug continues to be expensive, and the announcement that all dosage schedules should be practically doubled increases its cost in administration accordingly. Until further facts are available, one's confidence in the use of penicillin in syphilotherapy, even with the present advocated dosages, is admittedly disturbed. The fact that all patients receiving penicillin must be hospitalized and must receive eight or more injections every twenty-four hours constitutes a decided disadvantage.

The patient with little or no financial means can in many instances be cared for through Rapid Treatment Centers or other free or low-cost treatment agencies. In general, however, those patients with increased financial means prefer treatment by their private physician. The present advocated dosage of penicillin for any form of syphilis makes the availability of this treatment in many cases difficult because of the present scarcity of hospital beds and the excessive cost. The charge for furnishing and administering 5,400,000 units of penicillin (total dosage now suggested for treatment of secondary syphilis) in five different private hospitals in Birmingham, Alabama, ranges from $135.00 to $270.00. This amount does not include the cost of the patient's room or the doctor's fee. In some cases even where adequate funds are available the patient may not be able to lose the eight or more days required for hospitalization. In these patients the physician is faced with the problem as to what is the next best therapeutic regimen available. Of the methods for the treatment of early syphilis which do not utilize penicillin, it would appear that the physician could use either the conventional eighteen-month regimen, the Eagle triweekly plan, the twenty-six week schedule employed by the Army and Navy, or modifications of these. From the standpoint of toxicity, these routines have proven to be reasonably safe. Therapeutic results with the first mentioned regimen are favorable and definitely established. End results with the latter two methods are not available for a comparatively long period of time.

It is hoped, of course, that in the near future oral penicillin or penicillin in beeswax or oil, or a similar preparation, may surmount all of the present disadvantages associated with the administration of aqueous solutions of penicillin. For the present, Goodwin and Moore[17] advise against the use of slowly absorbed penicillin preparations, until results with these mixtures have been studied more adequately. Similar advice has been given against the administration of penicillin orally in its present available form.[24]

SUMMARY AND CONCLUSIONS

1. A brief summary of some of the recently proposed treatment schedules for early syphilis is given.

2. Advantages and disadvantages of the various schema are listed.

3. Although penicillin is the "best and safest drug" for the treatment of syphilis, recent changes in its potency have altered previously confirmed results. Penicillin therapy for syphilis will not be applicable for every patient until the necessity for hospitalization and the necessity of repeated daily and nightly injections can be eliminated and until its cost can be even further reduced.

4. Regardless of the treatment method used, the patient must have careful, repeated, periodic histories, physical examinations, spinal fluid examinations, fluoroscopic examination of the heart and aorta, and titered serologic tests. The safety and eventual success of the various regimens, particularly those more recently proposed, depend largely upon the clinical judgment of the physician in charge and his persistence in obtaining follow-up examinations for prolonged periods. Every syphilitic, even after apparent "cure," should be checked at least every year for a minimum of five years. Follow-up studies may prove to be as important as the original choice of therapy.

25. Stokes, J. H.; Beerman, H., and Ingraham, N. R., Jr.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Co., 1944.

VARICOSE VEINS

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Varicose veins may occur anywhere in the body. The usual locations are: upper extremity, central nervous system, esophagus in portal hypertension, broad ligament, urinary bladder, spermatic veins, hemorrhoidal veins and lower extremities. This discussion is to be limited to varicose veins in the lower extremities.

ETIOLOGY

While the etiology of varicose veins is not known, there are several factors that are thought to play an important part.

I. The posture of the human in walking. It is thought that man originally walked on all four extremities, and while the body has compensated a great deal because of its erect position, the superficial veins have not compensated entirely. The superficial veins do have valves but they become incompetent when the veins are dilated and one will develop varicose veins. Also, the superficial veins do not have the milking action of the muscles, as do the deep veins, to aid in the return of the blood.

II. Heredity seems to play a part in the development of varicose veins. I have seen varicose veins quite marked in a girl of thirteen years.

III. Undue strain is thought to play a part. This occurs in:

a. Prolonged motionless standing.

b. Constricting garters.

c. Pressure from enlarged lymph nodes.

d. In pregnancy, the pressure of the uterus and increased flow through the hypogastric veins cause a venous hypertension.

e. Following thrombophlebitis of the deep vessels there are sometimes varicose veins as a compensatory measure.

The pathology of this condition is caused by incompetent valves in the superficial veins.

SYMPTOMS

The usual symptoms are some degree of tiredness after standing, swelling of the ankles, pigmentation of the lower extremities, ulcerations and the unsightly appearance of the veins; and their complications, such as phlebitis, ulceration, eczema or superimposed skin infection. Several of the most conspicuous symptoms are apparently caused by some of the least marked varicose veins.

CLASSIFICATIONS

The mildest form of varicose veins is the small spider bursts which give only mental symptoms. These may be treated merely for a cosmetic reason. They actually cause no symptoms.

The other form is the true varicose veins of varying degrees. It may be of either of the greater or lesser saphenous veins or both of them. There may also be an incompetency of the communicating veins between the deep and superficial veins.

TESTS

The three tests most frequently used by me in the examination of these patients are the percussion test, the circulation test, and the patency of the deep communicating veins. The most frequent is the percussion test. With one hand over a prominent vein in the lower extremity, the terminal end of the great saphenous vein is percussed. If one feels the fluid wave with the lower hand then one may be certain that the valves are incompetent.

If there is a history of previous phlebitis, or much swelling, then the deep circulation should be checked. This may be done quite easily by placing a tourniquet around the upper end of the thigh, tight enough to occlude the superficial vessels. The patient is then instructed to walk for about fifteen minutes. If no cramping occurs in the extremity, the deep circulation is patent.

The other test is for the patency of the communicating veins. This is done by elevating the extremity and emptying the superficial veins. A tourniquet is then placed about the thigh in three levels (high, middle and low) and the leg is lowered. If the veins become filled immediately then the communicating veins are also incompetent. The use of the tourniquet in the three levels enables one to locate the incompetent communicating veins.

TREATMENT

Spider bursts may be treated by the injection of a very small amount of a diluted mixture of the sclerosing solution. These spider bursts have a mother vein supplying them and if this vein can be located and injected, the whole spider burst may be injected at one time. A word of caution here: too much solution injected will cause a brownish discoloration that may take a long time to disappear.

In the other form of varicose veins the best treatment depends on the type. If it is the usual case of incompetent greater and lesser saphenous veins, then the ligation of each, together with all terminal branches of the greater saphenous veins, is all of the operative procedure necessary. If, on the other hand, the communicating deep veins are also incompetent then one must do multiple ligations along the course of these saphenous veins, in addition to the usual high and low ligation.

I have stopped altogether the injection of sclerosing solution, at the time of ligation of veins, because of the discomfort following its use. It has been my experience that the effect of the injection is much worse than the operation. Not infrequently I have seen marked reactions following its use. A temperature of 102 to 104 degrees is not unusual. The patients will, quite often, complain very bitterly of these injected vessels.

No patient should ever have the injection of any sclerosing solution without first having a test dose given. A test dose of 0.1 cc., given in a superficial vessel, will enable one to determine any idiosyncrasy to the drug; and will also enable one to determine the patient's reactibility to the particular sclerosing solution.

These patients should all wear an elastic bandage while the injection treatment is being carried out. I like the Tensor Bandage, made by Curity, better than any other because it is elastic and therefore more comfortable. The use of the bandage keeps the vessels collapsed and prevents the indurated and raised areas that result from this induced chemical phlebitis. The use of the bandage also requires fewer injections, as it prevents the sclerosing solution from becoming diluted by a distended vein filled with blood. It is also my opinion that one should usually inject only 0.5 to 1.0 cc. at a particular site. The injection of two to four veins may be done at one office visit.

Acute thrombophlebitis of the saphenous veins is occasionally encountered. These patients should have immediate ligation and should never have the injection of sclerosing solution. They already have an inflammatory phlebitis, and the use of a sclerosing solution will only make matters worse.

Not infrequently patients with severe dermatitis will still have the weeping type of dermatitis following the above mentioned treatment. This only occurs in ulcers of long standing duration. The use of x-ray therapy will usually help these people a great deal. If this fails then it is sometimes necessary to excise this unhealthy scarred tissue and replace it with skin graft.

Failures do occur, but are always due to a failure in technique somewhere. Usually it is due to the failure to ligate one or more of the communicating branches of the greater saphenous vein at its proximal end. If one branch is not ligated and divided, regardless of its size, there will be a recurrence of the varicosities. The greater saphenous vein must be ligated in the foramen ovale, as close as possible to the femoral vein.

Cancer of the Larynx—Cancer of the larynx can be diagnosed as early as cancer of the skin, for hoarseness is the earliest and most persistent symptom of carcinoma of the vocal cords. Of all symptoms the most frequent is headache and the next is hoarseness. The frequency of hoarseness in the common disorders and its occurrence in a multiplicity of diseases is conducive to neglect by the patient as well as the doctor. Simply to say that hoarseness is an early symptom of cancer of the vocal cords is of no help in the early diagnosis of the condition. Something more is needed, for hoarseness ranks second among the symptoms and compared to the common diseases cancer of the larynx is relatively rare. The laws of physics, such as the law of gravity, and the laws of chemistry are mere crystallized experience. In this sense, it may be that any patient with hoarseness persisting as long as two weeks is entitled to an examination of the larynx, for hoarseness plus the time factor of two weeks is the equivalent of an early diagnosis. Pain radiating to the ear, the wheezy cough, difficulty in breathing, pain on swallowing, fetid breath, and persistent pain are all late symptoms.

It is a general diagnostic law that the presenting symptom is dependent on the location of the disease. Carcinoma of the vocal cords, intrinsic cancer, has the early presenting symptom of hoarseness, but the presenting symptoms of extrinsic cancer of the larynx are all late.—*Cody, Texas State J. Med., Dec. '47.*

Bed Rest in Heart Disease—1. Patients with active rheumatic fever, whether they show signs of heart disease or not should be kept on complete bed rest until at least two weeks after all signs of activity have disappeared. Rarely, in chronically active cases of long duration, the disadvantages of bed rest may outweigh the advantages.

2. Bacterial endocarditis also calls for complete bed rest until all signs of activity have been absent at least two, and perhaps a few more weeks.

3. Prolonged bed rest probably has little or no value in the treatment of angina pectoris. A possible exception to this is repeated frequent attacks of angina which may possibly be a prelude to coronary occlusion.

4. Patients in the acute stage of congestive failure should be placed at complete and absolute bed rest in the position of their choice which is almost invariably the sitting position. They should, however, be advised to move their legs frequently.

5. The physician should not be in too great a hurry to place the patient with chronic congestive failure in the recumbent position. Many of these patients may be treated just as well, during the early days, if not better, by being placed in a chair. After a certain degree of compensation has been attained, they may gradually begin to spend more time in the recumbent position. They should be urged to exercise their legs or take short walks in their rooms several times daily. They should be kept on this semi-complete bed rest until one week after all symptoms have disappeared when they may begin a period of gradually increased activity.

6. The value of prolonged bed rest in the treatment of myocardial infarction has probably been overemphasized. Complete and absolute bed rest in the recumbent position is indicated during the initial phase of shock. Following this, bed rest in the position of choice should be continued for three or four weeks. During this period the patient should be instructed to exercise his legs regularly and may be allowed to use a bedside commode if the use of a bed pan proves to be difficult. It is very important to warn the patient against reproducing Valsalva's experiment. The use of sedatives should be kept to a minimum. Following this initial period of bed rest, a period of convalescence with gradually increasing activity extending over four to six weeks may be begun.

7. Lastly, it should be emphasized that every case of heart disease is an individual problem and the general form of therapy should be varied accordingly.—*Black, New Orleans M. & S. J., Jan. '47.*

* * *

Tuberculosis in Private Practice—Rest is the most important single factor in treatment. Bed rest, yes, but also mental rest by assurance, and reassurance that opportunities for recovery are greatly enhanced by early rest. The period of time for rest is indeterminate and must depend on the individual case. Of course, you may err at times but a period of rest (with adequate diet) never does harm to any patient. Do not force feed these patients as of old. Remember a patient in bed has less caloric requirements.

While the patient is resting a temperature study, sputum examinations and sedimentation rates, and many other important clinical and laboratory studies may be made if indicated, or if not already done.

Many of these patients are anemic and often need iron, vitamins and other constructive procedures which may be administered during this observation period. Decreased temperature, retrogressive x-ray lesions, lessened cough, sense of well being, normal sedimentation rate, all are criteria that determine the prognosis.

At your visits further reassurances may be given such as discussion of various collapse procedures or their combinations as a mode of treatment. To remind the patient that such procedures as pneumothorax, pneumoperitoneum, phrenic interruption, and even total pneumonectomy are lifesaving methods of treatment is your duty.

You may occasionally lose a patient by this procedure but in the end you will gain and save many lives and long periods of suffering and, after all, is not this your real objective?—*Aven, J. M. A. Georgia, Dec. '46.*

* * *

Dislocated Intervertebral Disc—In nearly all cases of dislocated intervertebral disk of the lumbar region there is a considerable amount of muscle spasm in the spinal group of muscles, especially in the lower lumbar region. It is not unusual to see the spine listing to one side when the patient is asked to stand erect. The affected hip is held higher than the other so that there is a tilt of the pelvis, and as one views the patient from the back, the lumbar region is seen to list to one side, frequently with convexity to the opposite side, but the reverse may be the case. One can see flattening of the gluteal fold on the affected side. There is limitation of motion of the spine in all directions, but there is frequently more limitation by lateral bending to the affected side or hyperextension, since these acts would tend to increase herniation and narrow the disk space on the affected side. Tenderness on deep pressure over the affected spinous processes, usually the fourth or fifth lumbar, is present. Pressure just lateral to the spinous processes or over the intervertebral space affected may cause pain to radiate down the leg. As one palpates down the course of the sciatic nerve in the posterior part of the thigh, the patient complains of extreme tenderness. In some cases there are motor weakness and definite atrophy of the muscles of the calf and sometimes of the thigh.—*Lyerly, J. Florida M. A., Jan. '47.*

ANNUAL MEETING

BIRMINGHAM

APRIL 14, 15 AND 16

THE JOURNAL
of the
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RHINITIS MEDICAMENTOSA

"Occasionally a problem in the specialty of otolaryngology becomes great enough so that it should be called to the attention of all physicians. The symptoms and findings produced by misuse and overuse of vasoconstrictors in the nose are in this category.

"We, in the Section on Otolaryngology and Rhinology at the Clinic, and specialists in the field elsewhere have been aware for many years that the overuse of nasal vasoconstrictors eventually leads to difficulty with nasal function."

Thus does Lake[1] open his brief but excellent discussion of this very timely subject. And he goes on to tell us that "scarcely a day goes by but that some of us in the Section on Otolaryngology and Rhinology will see one or two patients who are the victims of abuse of nose drops. The usual story is that on the advice of their physician or by their own volition they have begun the use of nasal astringents. Nasal astringents represent a sizeable portion of the sales and advertising of the pharmaceutical houses. Kully, approximately a year ago, stated that there were 240 vasoconstrictor compounds on the market. . . .

"For the condition of the nasal membranes resulting from overuse of nasal vasoconstrictors, I have chosen the name 'rhinitis medicamentosa'."

The Rochester observer states that the patient usually gives credit for the opening of his nasal chambers to the vasoconstrictor agent and, when the nose plugs tight again, credits this aspect of his condition to sinusitis. And we are told that "if the patient has overtreated the nose for only a short time, the turbinates appear only moderately congested. If the patient has overtreated his nose for a long time, the turbinates are congested and the mucous membrane of the nose appears pale, is boggy in texture and has the appearance characteristic of allergic rhinitis. When the patient has been advised that he is overtreating his nose and that he should stop using nasal vasoconstrictors, he should be warned that for the next three or four days his nose will be more stuffy than usual but that after this the congestion will diminish. Usually by the end of a week he will be able to breathe quite freely providing there is no mechanical obstruction within the nasal chambers. Sedation at bedtime may be necessary for some patients. Every attempt should be made to alleviate the original trouble which led to the use of the nasal vasoconstrictors. A discussion of the normal physiology of the nose is frequently helpful in relieving the patient's mind of certain misconceptions that he has had regarding his nose."

The author asserts that "the basis for the reaction of the nasal mucous membrane to vasoconstrictors is well established. Kully stated that 'if vasoconstriction is severe and prolonged a reversal reaction ensues in the form of a secondary vasodilation involving the deeper venous sinuses more than the subepithelial vasculature. This accounts for the fact that the mucosa remains blanched. The secondary reaction may be more evident and prolonged than the primary constriction'."

Lake ends his discussion by telling us that "in conclusion, rhinitis medicamentosa is a commonly encountered condition resulting from the prolonged use of rapid vasoconstricting agents in the nose.

1. Lake, Clifford F.: Rhinitis Medicamentosa, Proc. Staff Meet., Mayo Clin., 21: 367 (Sept. 18) 1946.

"Actually the continued use of nasal vasoconstrictors is drug addiction.

"The temporary relief of nasal obstruction afforded by the use of nasal astringents gives a fallacious idea of their apparently beneficial effect. The prolonged use of vasoconstrictors for the relief of nasal obstruction results in definitely deleterious effect. The pernicious habit should be strongly deprecated."

It is indeed fortunate that, from time to time, voices are being raised against the overuse of nasal vasoconstrictors; because, if a mode of therapy has ever been overdone and excessively exploited, this is it. The public, the pharmaceutical houses, and unfortunately, all too many within the ranks of the profession have been at fault. It will doubtless take a long time for the public to learn, it may be a good while before the manufacturers cease their overexploitation, but there is little or no reason why physicians cannot know the truth and cease doing a considerable amount of harm.

ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

The Alabama Association of Obstetricians and Gynecologists will hold its annual session on Thursday, February 20, with morning, afternoon and evening sessions, in the Medical Society Auditorium of The Medical College of Alabama, Birmingham.

Guest speakers will include Dr. Bayard Carter, Duke University; Dr. Willard R. Cooke, University of Texas School of Medicine; Dr. Howard B. Lewis, University of Michigan Medical School; and Dr. George N. Papanicolaou, Cornell University Medical College.

REGARDING THE MEDICAL SLYD-RUL

Ciba Pharmaceutical Products, Inc. advises that there is an error in the Medical Slyd-Rul furnished members of the profession in the December issue of Ciba Symposia. Due to manufacturers' mistake in placement of decimal point, conversion from 0.4 grain to gram is incorrect. It should read 0.025 gram, not 0.25. Please make correction by replacing present celluloid table with corrected temporary paper table now being mailed.

Ciba regrets this error, and will replace the temporary slide with a new celluloid table as soon as possible.

MEDICAL COLLEGE OF ALABAMA

CLINICOPATHOLOGICAL CONFERENCE

Reported by
Roger D. Baker, M. D.
Professor of Pathology

Conducted by
James S. McLester, M. D.
Professor of Medicine

PRESENTATION OF CASE

Clinical abstract read by Dr. Stanley S. Kahn of the resident staff: A 66 year old white man was admitted to the hospital with the chief complaint of weakness. He had been well until ten weeks before admission when he began to develop weakness, fever, and productive cough. A physician diagnosed his illness as pneumonia, and prescribed one of the sulfonamide drugs. The fever subsided, but weakness and cough persisted, and he developed anorexia, and also tingling sensations in the legs. After a few days he again had fever for which sulfonamide therapy was reinstituted. He experienced four exacerbations of aching pains and fever, each of which responded to sulfonamide therapy. He remained bedridden. He estimated that he had lost 20 pounds of weight.

He had had the usual childhood diseases, typhoid fever at the age of sixteen, and an episode of pneumonia six years before admission. His vision had been failing for several years. He had had frequent colds and an occasional sore throat. All but three of his teeth had been extracted. He had never noted bleeding of the gums or of other body regions. He had had nocturia, four times per night, of unstated duration. His occupation had been that of carpenter. His mother had died of "old age and stomach trouble." One brother died in infancy, of unknown cause, and another died of Bright's disease.

The patient was a well developed, poorly nourished, white man who was pale and mildly dyspneic. The skin was warm and dry, with occasional hyperkeratoses and moles. The lymph nodes were not enlarged. The eyes, ears, and nose were normal. The lips and gums were pale. The teeth were carious. There was atrophy of the papillae of the tongue. Abnormal findings in the chest were limited to the right lower portion. In this area respiratory excursions and tactile fremitus were decreased, percussion note was hyperresonant, breath sounds were distant and tubular in quality, but voice sounds were clearly transmitted. Occasional fine rales were heard. The heart was judged to be "enlarged to the left." The point of maximal impulse was 10 cm. from the midsternal line in the fifth intercostal space. Heart sounds were of good quality, but somewhat distant. Rhythm was regular. There was a harsh, late, systolic murmur, heard best over the apex. The liver was palpable 3 centimeters below the costal margin, and the spleen was barely palpable. Rectal examination revealed a moderately enlarged prostate gland of rubbery consistency. There was no blood on the examining finger. Extremities were normal, except for marked tremor of the hands. Reflexes were physiologic. Hypesthesia of the lower extremities and a loss of vibratory sensation were noted.

On admission the temperature was 101.6°F., the pulse 78 per minute and the respirations 28. The blood pressure was 140 mm. systolic and 50 diastolic. The white cell count was 39,600, with 94 lymphocytes, 5 segmenteds, and one juvenile cell. The urine had a specific gravity of 1.017, and contained no albumin, sugar, blood cells, or casts. The pH was 7.5. The blood Kahn was negative. On the second day following admission, complete blood studies revealed the following: hemoglobin 5.5 grams (35%), red blood cells 2,370,000, color index 0.81, mean corpuscular diameter 7.8 micra, hematocrit 20 vol.%, mean corpuscular volume 87 cubic micra, mean corpuscular hemoglobin 23 micromicrograms, mean corpuscular hemoglobin concentration 27.5%, and reticulocytes less than 0.1%. The white blood cells numbered 65,000. The differential count showed: lymphoblasts 3, lymphocytes 87, stabs 1, and segmented neutrophils 9. There were 45 smudge cells per 100 white blood cells. The red blood cells were hypochromic and slightly variable in size and shape. The blood platelets appeared normal.

Examination of the sternal bone marrow revealed the following: Segmenteds 5%, lymphocytes 95%, normoblasts 1%, smudge cells 56%. The myeloid-erythroid ratio was 100 to 1. The myeloid and erythroid tissues were markedly suppressed by the lymphocytic cells, probably because of invasion of bone marrow by leukemic cells. The platelets were diminished in number.

Roentgenologic examination of the chest on the day after admission showed a coarse infiltration through both upper lobes and apices. The right diaphragm and right costophrenic angle were obliterated, suggesting a small amount of fluid. The interpretation of the radiologist was a reinfection type of tuberculosis.

Penicillin was given intramuscularly every three hours in doses of 30,000 units until the seventh and final hospital day. A total of 46 injections equivalent to 1,380,000 units were given. Despite penicillin therapy the fever ranged from 99 to 104 degrees. The pulse rate varied from 70 to 100, and the respirations from 20 to 30 per minute. A transfusion of 500 cubic centimeters of blood was given on the fourth hospital day. Vitamin therapy was also given.

The patient became worse. On the evening of the sixth hospital day, he complained of a smothering sensation. About midnight he complained of being chilly. He voided and defecated involuntarily the following morning. He developed marked dyspnea and Cheyne-Stokes respiration, lapsed into coma during the afternoon, and expired at 8:00 P. M. on the seventh hospital day.

CLINICAL DISCUSSION—DR. McLESTER

This history presents the following

Salient Features

Illness of two months
Fever
Cough
Weakness, numbness and tingling in the extremities
Atrophy of papillae of tongue
Loss of vibratory sense
Changes at both apices and at right base of lungs
Palpable spleen
65,000 white blood cells with 90% lymphocytes

The patient was obviously sick; he had 65,000 white blood cells nearly all of which were lymphocytes, a palpable spleen and fever. What was the cause?

A Student: Infectious mononucleosis.

Another Student: Lymphatic leukemia.

Dr. McLester: We can rule out the first of these without great difficulty. He had too many white blood cells for an infectious mononucleosis; in this disease these cells seldom number more than 20,000. And he was too old; this is a disease of youth. We did not ask for the heterophil test, but I am sure we are safe in saying that he did not have infections mononucleosis.

The second diagnosis offered, lymphatic leukemia, is apparently the correct one. Was it chronic or acute? The period of illness was very short for chronic leukemia, but on the other hand the course of the disease was not so terribly stormy as is usual in acute leukemia. In addition, there was none of the stomatitis or ulcerative angina so often seen in the acute disease and the bone marrow did not show the expected immature lymphocytes. We must call it chronic lymphatic leukemia, and to account for its rapid course look for some complicating disorder.

In this search for additional trouble let us look at the radiogram of the lungs. There are marked changes in both apices. In addition, there is a shadow at the right base with thickening of the right pleura. One question must be injected here. This man apparently had an enlarged prostate; he got up four times each night to pass his urine. Did he have carcinoma, with metastases in the lungs? No, the changes at the apices are unmistakably tuberculous. One might ask why tubercle bacilli were not found in the sputum or the gastric contents. The answer probably is that there was no ulceration in the lungs and therefore no casting off of bacilli. The shadows at the right base and the pleura are not so distinctive, but I think it fair to assume that it is all one process, and that all of the pulmonary changes are tuberculous. Then, another question, perhaps the most interesting question of this conference, presents itself. What relation, if any, did the tuberculous infection bear to the leukemia? And, how frequently are these two diseases associated? We shall ask Dr. Riser presently to discuss this.

Still another question, apparently of less importance, arises. How can we explain the atrophy of the papillae of the tongue, the numbness and tingling in his extremities, and the loss of vibratory sense? His anemia would account for some of this, but not for all. The loss of vibratory sense definitely suggests cord changes such as are seen in pernicious anemia, in subacute combined sclerosis and in certain forms of nutritive deficiency. Obviously, he did not have pernicious anemia. I think it fair to assume that he suffered from nutritive deficiency and to attribute this to the burden thrown upon his metabolism by the two major disorders.

I would, therefore, offer the following

CLINICAL DIAGNOSIS

Chronic lymphatic leukemia

Pulmonary tuberculosis

Nutritive deficiency

PATHOLOGICAL DISCUSSION—DR. BAKER

The performance of the autopsy and the examination of the organs revealed appearances consistent with the clinical diagnosis of chronic lymphatic leukemia, but the lymph nodes were not as conspicuous as they usually are in this disease. The liver and spleen weighed twice as much as they do normally. On the inside of the larynx there were innumerable little flecks shown to be leukemic infiltrations by microscopic study. The bone-marrow of the femur was fatty, indicating that here, at least, leukemic infiltration had not taken place. The lungs were voluminous, and did not collapse as they normally do. The cut surfaces showed consolidation of a lobar distribution, the upper lobes being chiefly involved. The right pleural surfaces were yellow and nearly a centimeter thick, with a small empyema cavity containing a turbid fluid. The mediastinal lymph nodes were gray, firm, and as large as bantam eggs.

The microscopic sections (microscopic projection) show the features of chronic lymphatic leukemia in the lymph nodes, spleen and liver. Leukemic infiltrations are seen in the kidney and testis. Sections of the lung show caseous pneumonia, and carbol-fuchsin stains show enormous numbers of acid-fast organisms. These are tubercle bacilli in great masses. Scattered tubercles

occur in the spleen and liver, indicating mild hematogenous spread.

Thus there was a lobar tuberculous pneumonia, a "galloping consumption." This was by far more important than the leukemia in causing death. Indeed, it is fair to say that the patient died not of leukemia but of tuberculosis. This is borne out by the history of cough and fever, symptoms of the tuberculosis. The weakness could be correlated with either the leukemia or the tuberculosis.

ANATOMICAL DIAGNOSIS

Chronic lymphatic leukemia
Bilateral tuberculous lobar pneumonia
Tuberculous pleurisy
Hematogenous tuberculosis

The clinical diagnosis of cord lesions made by Dr. McLester was not checked pathologically as the spinal cord was not secured for examination.

Dr. William H. Riser, Associate Professor of Clinical Pathology: Symptoms of numbness and tingling in the extremities are relatively common in any type of severe anemia, and not necessarily always associated with a macrocytic and hyperchromic anemia. I would say that the anemia in this patient was due to a combination of chronic infection (tuberculosis) and leukemia. It really isn't a myelophthisic anemia, since lymphatic leukemia does not necessarily involve the bone marrow on a widespread basis.

When we first saw this patient we made a diagnosis of chronic lymphatic leukemia, purely by study of the blood picture. A few days later the radiologist made a diagnosis of pulmonary tuberculosis, and this was somewhat confusing to us in view of the blood picture. We were unable to correlate the clinical picture with the blood findings and of course realized that there was something atypical in this particular case. As you know, leukemia is a widespread disease and may involve any tissue in the body and, therefore, may simulate many different disease processes. Lesions may occur almost anywhere in the body.

Lymphocytosis may occur in any number of different diseases, and the common ones may be listed as follows: tuberculosis, syphilis, Hodgkin's disease, lymphosarcoma, infectious mononucleosis, typhoid fever, typhus fever, brucellosis, measles and whooping cough. After discovering that the patient had tuberculosis, we were confronted with the problem of whether the blood picture represented a leukemoid reaction or chronic lymphocytic leukemia. The presence of primitive cells in the circulation and other features indicated to us that it was not a leukemoid reaction. Leukemoid reactions are relatively common in patients suffering with tuberculosis and the cell reaction varies according to the stage of the disease. During the healing stage there is a lymphocytic response, whereas during the active phase there is a monocytic response. The lymphocyte-monocyte ratio varies according to the activity of tuberculosis. An increase in monocytes indicates an active lesion, whereas a lymphocytic response indicates an inactive or healing stage of tuberculosis.

I looked into the literature to determine the frequency of the coexistence of tuberculosis and chronic lymphatic leukemia and was surprised to find that there were numerous reports of this relationship. In 1872 Moseley reported 100 cases of leukemia in twelve of which there was tuberculosis. In 1892 there were several case reports of leukemia with tuberculosis of the liver, spleen and lymph nodes. Several investigators have reported miliary tuberculosis in chronic leukemias. In 1942 Farber and Bylebyl (Farber, J. E. and Bylebyl, H., Am. J. Clin. Path. 12: 253-260, 1942) made a special study of the coexistence of leukemia and tuberculosis. Fifteen cases were reported. Ten had generalized tuberculosis, the remaining localized lesions. There are reports of tuberculosis coexisting with chronic myelogenous leukemia, but it is more common in chronic lymphatic leukemia. In a recent report of 123 cases of leukemia 12 had tuberculosis in one form or another.

The patient with chronic leukemia in any form experiences poor health over a period of many years and is, therefore, susceptible to any infection. In any case of leukemia, however, one should be certain that he is not dealing with a leukemoid reaction. This differentiation is not always easy in patients with chronic leukemia because the leukocytes may appear relatively normal. In the acute leukemias on the other hand, the blood picture is sufficiently characteristic to permit a definite diagnosis. Studies of bone-marrow are useful in atypical leukemia.

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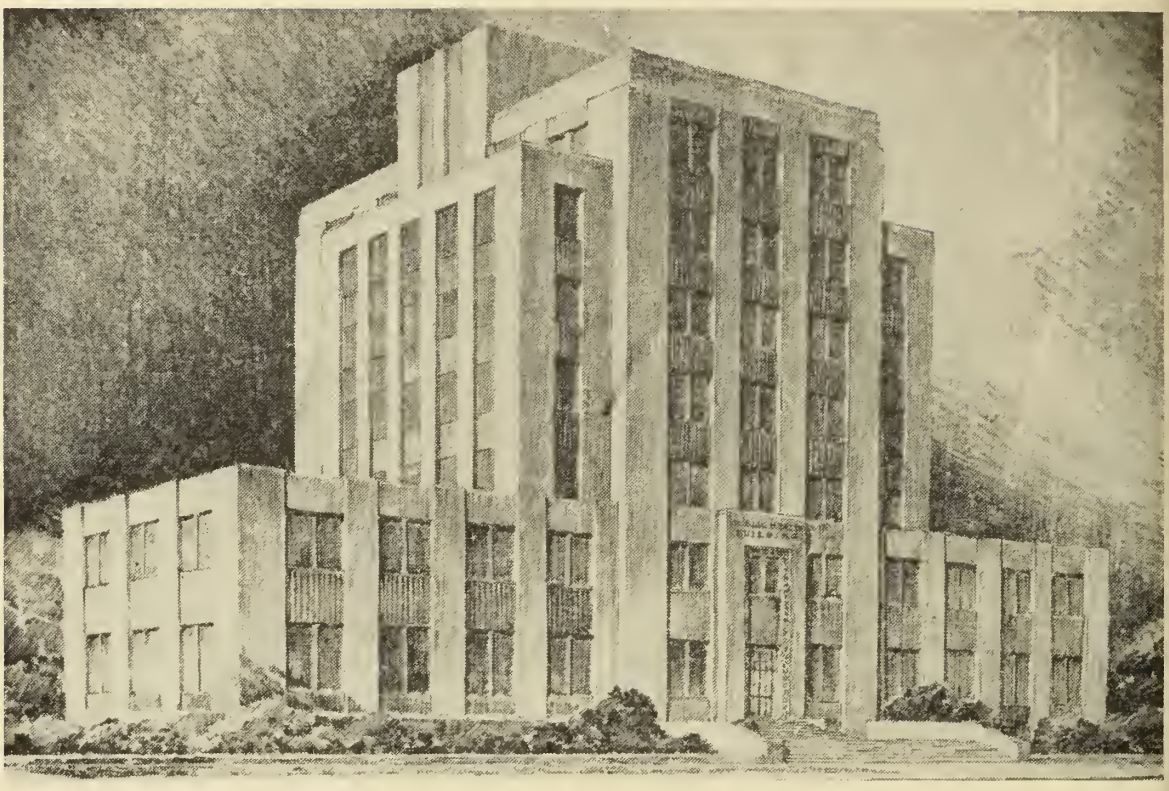
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Contemplated Jefferson County Public Health Building, Medical Center, Birmingham.

STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

D. G. Gill, M. D.
State Health Officer

TREATING TUBERCULOSIS

You may have heard of Clark Lee. If not, you probably have seen his by-line on dispatches from the Far East; for Clark Lee was a war correspondent for International News Service and before taking his present job was with that other world-girdling news service, the Associated Press.

In a recent article Clark Lee tells about the A. P. office boy in Shanghai. Perhaps it is hardly correct to call him a boy, because he was 24 years of age, old enough to have been voting three years or more if he had been living in Alabama. (The writer doesn't know much about voting ages in China.) But anyhow Mr. Lee described that youngster as "a bright, healthy looking, handsome lad." He went up to Mr. Lee one day in the summer of 1941, just a few months before that fateful December 7 which was to plunge the United States into the war.

"I am quitting my job," he said. "I do not make enough money to live, with the price of rice the way it is."

Mr. Lee, who had been watching the Japanese war against China and writing about it for American readers, was naturally sympathetic. And he certainly knew, even with his war correspondent's salary, that meeting expenses in that war-ridden country had become a task of the first magnitude. He did not resent the young man's implication that perhaps he was not being paid enough for his work. Instead, he offered to increase his salary and, what was much more important, promised him that, if he would stay, he would see personally that the young man received a sack of rice every month. But the Chinese youth turned down the offer.

"Thank you," he said, "but it is of no use. I have tuberculosis and I am dying."

Naturally surprised and shocked, Mr. Lee said he would send him to a hospital. But the youngster again refused, saying: "No, it is too late. I will be dead in a month."

And, sadly enough, he was right. For his funeral was held three weeks after that conversation. Some time later his sister went by the A. P. office to tell Mr. Lee and his associates how deeply she and the others in the family appreciated some rice which had been sent to the survivors. The newspaper people did their best to console her about their loss. But she was Chinese, and she knew tuberculosis as most people know it in China.

"Oh," she said, shrugging her shoulders in the manner of one accepting the inevitable. "That couldn't be helped. He had tuberculosis and there is nothing to be done about that in China."

Mr. Lee found that he did not know as much about tuberculosis and the country to which he had been assigned as he had thought.

"The resignation of Wong and his sister to early death by tuberculosis was typical of that of many people in war-ravaged countries I visited between 1936 and 1946," he wrote. "Living outside of the United States, I came almost to accept their fatalistic view that tuberculosis was inevitable among peoples without proper food or medical facilities, and that the disease inevitably meant death."

With the psychological state born of association with tuberculosis in war-town countries, he was deeply shocked when, some time later in the Philippines, he received a letter from someone in the United States containing the sad and, to him, fatalistic news that a warm personal friend of his, the mother of three children, had developed tuberculosis. Of course, he decided, the disease would kill her in short order, just as it had killed Wong there in Shanghai. He wondered what would become of those three children, deprived of their mother's influence and guidance at an early age. And what about her husband? Already Mr. Lee began feeling sorry for him, doomed, it appeared, to many years of loneliness and that gnawing grief which becomes less insufferable but still a heavy burden with the passing of time. But he was still thinking about tuberculosis in China and other war-wrecked countries. And his friends, fortunate humans, were Americans, citizens of a country which was yet unacquainted with war in the sense that China, France and those other countries had grown to know it —as their constant, day-by-day companion. So he had a shock coming to him when his foreign assignment ended—a pleasant shock.

"Recently," he wrote, "I returned to the United States and visited those friends. The mother was at home, caring for her children's health and education. She had been discharged as completely cured from a hospital, not an expensive private sanatorium which would have been beyond her means, but a publicly supported institution with modern equipment and methods, and first class doctors and nurses."

How different the outcome of his American friend's illness had been from that of his young Chinese friend! That contrast started him to thinking how fortunate one is to be an American when one develops tuberculosis.

"The happy outcome of my friend's illness, in contrast to the sad death of young Wong in Shanghai, was convincing personal proof that tuberculosis need not be fatal," he commented. "The important thing is to discover it in time, and then to have adequate facilities for its cure."

Fortunately for our foreign friends, the end of the fighting phase of World War II has made it possible for the health authorities in China and other countries which bore the brunt of the fighting to improve health conditions, including tuberculosis conditions, there. But, even in so-called normal times, health standards in China are much lower than they are in this country.

America also has a job on her hands to repair the damage done to her people's health, especially to their lungs, by the war. In spite of our great good fortune in keeping it several thousand miles away from our shores, except for naval engagements, our health generals know that the struggle to keep Americans tuberculosis-free has been made much more difficult by the war. They know, and are doing all they can to make others know, that the very fact that a nation is at war greatly increases the tuberculosis

hazard for its people. Shifting of population, the entry of large numbers of women into war work, overcrowding due to the extreme housing shortage, food shortages, overtime work, disruption of home and family life, the heightened physical and emotional tension inspired by world-shaking happenings, the lowering of moral standards—all these and many other things tend to prepare the soil for more and more tuberculosis.

War's effects upon tuberculosis are not apparent immediately. That is a good thing in a sense, in that it postpones breakdowns and deaths from this disease and adds a few more months or years to many persons' lives. But it is unfortunate in another respect: Many people, buoyed to unwise optimism by a failure of the tuberculosis death curve to rise sharply with the outbreak of war, tend to let that optimism overbalance their better judgment. Like the child who keeps his eyes on a vicious dog until he becomes convinced that it is harmless and then is bitten savagely when he is not on his guard, many persons who exercised precautions to avoid developing tuberculosis during the fighting phase of the war are relaxing their vigilance and caution now that that phase has ended and may find that they stopped being careful too soon. As a matter of fact, one should never cease to be careful where this disease is concerned. There is never a time when it ceases to be deadly dangerous, even for a moment.

Although the already mentioned lag, between war and war-created rises, in tuberculosis mortality prevented this country from experiencing a sharp increase in deaths from this disease prior to V-J Day, Americans who succumbed to this disease during the war period made a disturbing total. The best available records show that no fewer than 206,000 persons in this country succumbed to tuberculosis between Pearl Harbor Day and the day of Japan's abject surrender on the deck of the "Mighty Mo" in September 1945. This lacked less than 47,000 equaling the 252,885 deaths occurring during the war period among service personnel in all branches of the service.

At the present time, according to an estimate by the National Tuberculosis Association, there are about half a million persons with active tuberculosis in the United States. Half of them, it is said, do not know they have the disease. This means that about a quarter of a million Americans, some of them perhaps your friends and associates, are unknowingly exposing others to the germs and thus adding more and more links to the tragic chain of infection.

Although from time to time newspaper headlines and radio commentators tell of some new discovery which seems to hold considerable promise of an early and complete cure for tuberculosis, the public health agencies, the tuberculosis associations and the medical profession, facing realities realistically, continue to warn against too much optimism. Nobody would be happier than they to see a drug which would do for the Great White Plague what antitoxin does for diphtheria and what penicillin is now doing for the venereal diseases, but long experience has taught them the virtue of conservatism and impressed upon them the cruelty of building up bright hopes and seeing them ruthlessly dashed against the rocks of disappointment and failure.

The writer is thinking particularly of the new drug known as streptomycin, and no doubt many of his readers are thinking of it too, for it has received considerable attention from lay and professional writers during the past several months. Let us see what an expert in the field of tuberculosis control has to say about it. In an article issued some time ago under the official sponsorship of the National Tuberculosis Association, Dr. H. Stuart Willis, interim director of that association's Committee on Medical Research, wrote:

"The coming of streptomycin has been an interesting and promising development because it appears to modify—but cannot cure —tuberculosis favorably. This drug is under study in several places throughout the country, notably at the Mayo Clinic, Rochester, Minn.; the Saranac Laboratory, Saranac Lake, N. Y. and the National Institute of Health, Bethesda, Md. From the studies so far made on animals, streptomycin appears to give considerable protection against tuberculosis—not complete, but more than any other drug has ever given. It is not, however, a cure.

"Streptomycin has been used in the treatment of several people with tuberculosis, most of whom have been helped. But the

disease returns to its former state when streptomycin is withdrawn. No one has been cured by streptomycin and no proof exists that anyone will be cured. Active study of the drug by chemists and physicians proceeds in the hope that sooner or later a substance related to streptomycin will be found which will really cure.

"At present streptomycin stands out as a landmark on the road toward a cure. It is a remarkable drug which is receiving exacting care. Until the proper substance is found, however, we should continue to use all the accepted methods of treatment which, in so many cases, do great good."

Those "accepted methods of treatment" which Dr. Willis mentioned are of course the ones now being used by the public health agencies, the medical profession and the tuberculosis associations in their relentless campaign against this still-potent killer.

BUREAU OF PREVENTABLE DISEASES

CURRENT MORBIDITY STATISTICS

1946

	Oct.	Nov.	E. E.* Nov.
Typhoid	3	3	13
Typhus	25	33	37
Malaria	113	74	172
Smallpox	1	0	0
Measles	12	38	20
Scarlet fever	67	72	128
Whooping cough	36	38	67
Diphtheria	47	46	118
Influenza	78	151	215
Mumps	20	19	37
Poliomyelitis	18	9	4
Encephalitis	0	1	1
Chickenpox	10	61	77
Tetanus	3	2	5
Tuberculosis	233	297	196
Pellagra	5	2	14
Meningitis	10	3	9
Pneumonia	118	125	229
Syphilis	1507	1613	1315
Chancroid	31	42	11
Gonorrhea	964	819	432
Trachoma	0	0	0
Tularemia	0	1	0
Undulant fever	7	7	3
Dengue	0	0	0
Amebic dysentery	2	1	0
Cancer	238	326	0
Rabies—Human cases	0	1	0
Positive animal heads	34	41	0

As reported by physicians and including deaths not reported as cases.

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

Streptomycin is not to be regarded as a substitute for other and proved effective forms of treatment of tuberculosis. Treatment with this antibiotic should be postponed or denied to those tuberculous patients who are making satisfactory progress and who are likely to achieve the arrest of their disease as a result of conventional therapeutic methods. H. Corwin Hinshaw, M. D., William H. Feldman, D. V. M. and Karl H. Pfuetze, M. D., J. A. M. A., Nov. 30, 1946.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES, SEPTEMBER 1946, AND COMPARATIVE RATES FOR 1946, 1945 AND 1944

Births, Stillbirths, and Causes of Death	Number Registered—During September 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births, exclusive of stillbirths	7467	**	**	31.4	25.8	27.6
Stillbirths	222	**	**	28.9	30.4	27.8
Deaths, exclusive of stillbirths	1795	1057	738	7.5	7.6	8.1
Infant deaths:						
Under one year	269	147	122	36.0	42.6	40.2
Under one month	203	119	84	27.2	27.4	23.8
Typhoid and paratyphoid 1, 2	1	1	...	0.4	1.3	...
Epidemic cerebrospinal meningitis 6	...	...	...	...	0.4	2.1
Scarlet fever 8	...	...	...	...	...	0.4
Whooping cough 9	4	3	1	1.7	0.8	5.0
Diphtheria 10	3	2	1	1.3	1.7	4.6
Tuberculosis, all forms 13-22	80	24	56	33.6	33.2	40.0
Malaria 28	5	2	3	2.1	2.5	3.4
Syphilis 30	15	4	11	6.3	10.9	14.3
Influenza 33	5	2	3	2.1	2.5	2.1
Measles 35	...	...	...	...	...	...
Poliomyelitis 36	6	5	1	2.5	...	0.8
Encephalitis 37	...	...	...	...	0.8	...
Typhus fever 39	6	2	4	2.5	2.1	3.4
Cancer, all forms 45-55	175	130	45	73.6	71.9	73.4
Diabetes mellitus 61	27	20	7	11.4	9.7	8.8
Pellagra 69	7	3	4	2.9	3.4	5.0
Alcoholism 77	4	2	2	1.7	1.7	0.4
Intracranial lesions 83	167	92	75	70.2	74.4	75.0
Diseases of the heart 90-95	346	242	104	145.5	148.8	163.1
Diseases of the arteries 96-99	29	17	12	12.2	5.5	8.4
Bronchitis 106	3	2	1	1.3	0.4	0.8
Pneumonia, all forms 107-109	71	43	28	29.8	22.3	32.0
Diarrhea and enteritis (under 2) 119	3	1	2	1.3	15.6	15.6
Diarrhea and enteritis 2 and over) 120	3	2	1	1.3	4.6	1.7
Appendicitis 121	15	10	5	6.3	5.9	5.0
Hernia, intestinal obstruction 122	17	6	11	7.1	3.8	5.9
Cirrhosis of the liver 124	15	13	2	6.3	4.6	5.5
Nephritis, all forms 130-132	132	66	66	55.5	56.3	65.3
Puerperal causes 140-150	15	6	9	19.5	22.1	35.7
Puerperal septicemia 140, 142a, 147	4	1	3	5.2	6.3	6.0
Suicide 163-164	16	16	...	6.7	6.7	5.9
Homicide 165-168	36	10	26	15.1	7.6	9.3
Accidental deaths (exclusive of motor vehicle) 169, 171-195	75	51	24	31.5	41.2	37.9
Motor vehicle 170	49	31	18	20.6	23.1	14.3
All other known causes	333	205	128	140.0	142.1	132.4
Ill-defined and unknown causes 199-200	132	44	88	55.4	52.6	61.5

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births, deaths from specific causes per 100,000 population; deaths from puerperal causes per 10,000 total births. All rates are based upon the September report of the yers specified.

**Not available.

BOOK ABSTRACTS AND REVIEWS

Pathology of Tropical Diseases. By J. E. Ash, Colonel, M. C., U. S. A., Director, Army Institute of Pathology, Army Medical Museum; and Sophie Spitz, M. D., C. S., A. U. S., Pathologist, Army Institute of Pathology, Army Medical Museum. Cloth. Price, $8.00. Pp. 351, with 941 illustrations, 15 in color, on 257 plates. Philadelphia and London: W. B. Saunders Company, 1945.

An atlas on the subject of tropical diseases is very timely because the physicians of the continental Americas are seeing the returned members of the Armed Forces who have been exposed to the tropical diseases around the equator. Perhaps ten million men have been exposed to these diseases and their return to their homes will probably expose many people who have never left the United States. For this reason, and this reason alone, this atlas should be in the hands of each physician. He must become conscious of the existence of these diseases, which, until the present time, have been unknown to practitioners in the northern climates.

The atlas is purely a pathological presentation. It does not contain a clinical or epidemiological portion. This appears to be an addition to the text that is almost a necessity for the men practicing medicine. However, the authors state that they are qualified only to present the detailed histological and pathological changes as exhibited by the tropical diseases. The authors are internationally recognized as authorities on the subject, having had extensive experience with tropical diseases.

Twenty-two chapters are presented, grouping the most important conditions on the basis of etiology. The index provides an easy reference to the text, as well as to the photographic presentations. The photographic presentations are of the finest microphotographs that have been exhibited. There is good format. The type is adequate. The reading is simple. All of the pictures, both of gross and microscopic, as well as clinical pictures, are adequately labeled by texts below each picture. Many of the photomicrographs and anatomical pictures have arrows or indicators pointing out the exact location of the pathology so that the average clinician is shown the exact site of the disease.

The clinical photographs of patients exhibiting the various manifestations are beautiful reproductions. There are only fifteen illustrations in color out of 941 that are presented. An additional number would have increased the vividness of the photographs, but it probably would have also increased the cost. This was something to be seriously considered when one remembers that the atlas was produced during the time of paper restriction.

Each of the subjects is handled adequately. They contain a brief description of the disease, a short epidemiological survey and an even shorter and in many cases inadequate, clinical presentation and then the extensive and complete pathological description, including the plates of the findings. The epidemiology is visually presented by maps and shaded areas indicating the prevalence so that an instantenous conception can be had of the distribution in the world at large.

Life cycles of various parasites are presented in sketches, which makes the understanding of the distribution, host, etc., very vivid.

The presentation of the dysenteries and amebiasis is very instructive. Chapters 14, 15, 16 and 17, which deal with the intestinal parasites, should be studied by all clinicians.

The atlas should be in the hands of every clinician, ready for instant reference and consultation. The reviewer cannot be critical regarding the individual diseases because so much of it is extremely foreign to him. However, the experiences of the authors and the recommendations must be highly respected. It is evident, though, by careful study of the entire volume that an additional volume will have to be issued, which will not only include this pathological presentation but also a more elaborate epidemological and clinical feature.

Norman Van Wezel, M. D.

A. M. A. Centennial—Nineteen hundred and forty-seven is the American Medical Association's centennial year.

Plans are already under way for celebration of the Centennial at the American Medical Association's annual session in Atlantic City June 9 to 13, and the January 4 issue of The Journal says editorially that "the program for this occasion will represent a high point in the assemblages of physicians anywhere in the world."

On June 7 the Board of Trustees and officers of the Association will tender a banquet to leaders in the industries and occupations associated with medicine, at which distinguished speakers will comment on the influence of American medicine on the nation's progress.

On Sunday, June 8, a religious service will be held in the great hall in Atlantic City at which three great religious leaders will speak on the spiritual aspects of medicine and health. Those scheduled at this time include Monsignor Fulton J. Shean of Catholic University, Washington, D. C.; Rabbi Joshua Liebman, Boston, and Dr. Ralph Cooper Hutchison, president of Lafayette College, Easton, Pa.

"On this Sunday," The Journal says, "ministers throughout the nation will be asked to devote their sermons to a similar topic. It is hoped that in all the communities throughout the country physicians who are associated with religious groups will take up with their spiritual leaders at an early date the desirability of such a program. It is hoped, also, that arrangements can be made, as now seems likely, for a national broadcast of the religious services from Atlantic City."

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BACKGROUND

OVER THREE DECADES OF CLINICAL EXPERIENCE

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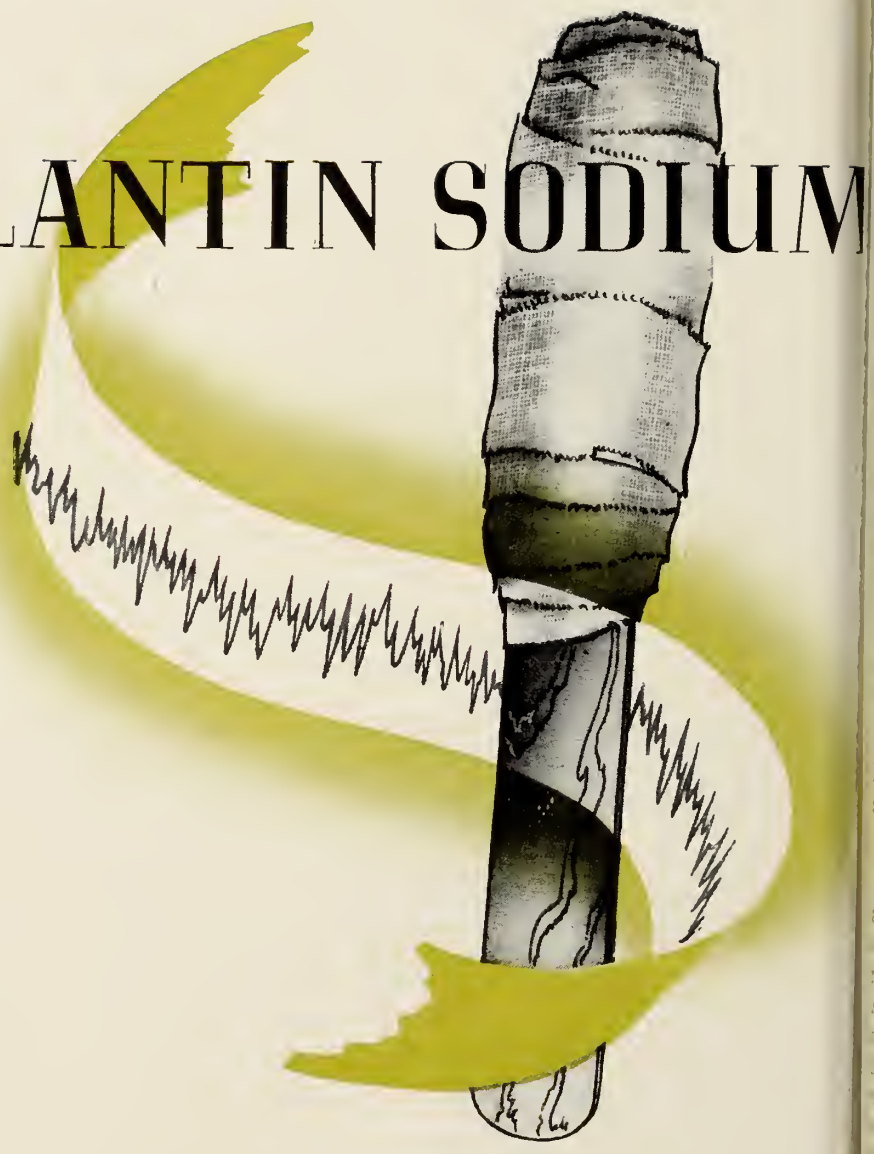
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PREOPERATIVE MANAGEMENT OF HYPERTHYROIDISM

USE OF THIOURACIL AND THIOBARBITAL

ROBERT F. GUTHRIE, M. D.
Birmingham, Alabama

The problems involved in the preoperative preparation of the thyrotoxic patient have been minimized by the new drug, thiouracil, which greatly increases the safety of surgical procedures on this type patient. The distinct ability of thiouracil to produce a positive remission in severe states of hyperthyroidism enhances its value in the management of patients who are dangerous risks or who are so toxic as to require multiple-stage procedures. Cases of mild hyperthyroidism continue to be prepared with Lugol's solution since this method provides satisfactory control of this group of patients.

MODE OF ACTION

Based on experimental observations on animals which indicated that the formation of the thyroid hormone is inhibited by a number of relatively nontoxic compounds, Astwood[1] investigated and found that the administration of thiourea and thiouracil inhibited the excessive production of the hormone in human thyrotoxicosis. This effect of thiourea was confirmed and extended by the studies of Himsworth[2] who treated six hyperthyroid patients with good results. Shortly after the first successful trials of thiourea had been initiated, a study, by Astwood,[3] of the activity of a number of related compounds revealed that thiouracil was a more highly active substance and therefore of greatest interest clinically.

The histological appearance of the thyroid gland is one of hyperplasia in contrast to the clinical and laboratory picture of hypothyroidism. This picture indicates that the thyroid gland is being stimulated by the thyrotropic hormone but is not producing sufficient thyroid hormone. Experimental studies have confirmed this viewpoint, that thiouracil and thiourea inhibit the production of the thyroid hormone by the thyroid gland. This results in an increased output of the thyrotropic hormone which produces hyperplasia of the thyroid gland.

Williams[4, 5] and his group concluded that 15% of thiouracil is destroyed in the gastro-intestinal tract and the remaining 85% is absorbed. Thiouracil is absorbed easily from the gastro-intestinal tract and quickly disappears from the body. Following ab-

Abstract of paper read before the Postgraduate Seminar (1946) of the Medical College of Alabama.

From the Department of Surgery of the Medical College of Alabama.

1. Astwood, E. B.: Treatment of Hyperthyroidism with Thiourea and Thiouracil, J. A. M. A. 122: 78-81, May 8, 1943.

2. Himsworth, H. P.: Thyrotoxicosis Treated with Thiourea, Lancet 2: 465-466, Oct. 16, 1943.

3. Astwood, E. B.: The Chemical Nature of Compounds Which Inhibit the Function of the Thyroid Gland, J. Pharmacol. & Exper. Therap. 78: 79-89, May 1943.

4. Williams, R. H.; Kay, G. A., and Jandorf, B. J.: Thiouracil—Its Absorption, Distribution and Excretion, J. Clin. Investigation 23: 613-627, Sept. 1944.

5. Williams, R. H.: Further Studies of the Absorption, Distribution and Elimination of Thiouracil, J. Clin. Endocrinol. 4: 385-393, Aug. 1944.

sorption of therapeutic doses, most of the drug is found in the red and white blood cells. The pleural and ascitic fluids contain about the same amount as whole blood, but the cerebrospinal fluid, edema fluid, and pericardial fluids contain only small amounts of thiouracil. There is a universal distribution of thiouracil in all tissues of the body, with large amounts in bone marrow, thyroid, ovaries and pituitary glands and small amounts in the liver, striated muscle and testes.

Relative to elimination, Williams and his group also found that, with therapeutic doses, 15% of the drug is destroyed in the gut before elimination, 35% is eliminated in the urine, and 50% is destroyed in the tissues. No thiouracil is found in the stools. In pregnant females the drug is observed to pass through the placenta; in lactating mothers it appears in the milk in fair amounts.

MANNER OF TREATMENT

The safe conduct of surgical procedures on the hyperthyroid patient has been greatly increased with the use of iodine in the preparation of cases of mild hyperthyroidism and the utilization of thiouracil or thiobarbital in those cases with more marked thyrotoxicosis. The use of these drugs is supplemented by a high caloric diet, sufficient rest, and adequate intake of fluids. The attainment of specific objectives in the preparation of these patients is reached by close observation of the patient and correlation of these fundamentals of management.

Iodine: The administration of thiouracil or iodine is the most important factor in the preoperative management of the toxic goiter patient. The use of iodine was rediscovered and advocated by Plummer[6] and this drug has contributed much to the preparation of the hyperthyroid patient. The patient is usually given 10 minims of Lugol's solution three times daily in water, fruit juice, or on dry toast. The therapy is continued for an average of about twelve days but if satisfactory clinical improvement has not been attained at the expiration of this time the medication is continued for a longer period.

Thiouracil or Thiobarbital: These drugs require a longer period of treatment than that noted in iodine therapy but the decrease in toxicity is much more pronounced. Lahey[7] has advanced the rule of administering thiouracil for a period of one day for each degree of elevation of the basal metabolic rate above normal. For example, a patient with a basal metabolic rate of +55 will require approximately 55 days of thiouracil therapy to bring the basal metabolic rate to normal. Thiouracil is administered in total daily doses of 0.6 gm.—0.2 gm. at 7 A. M., 3 P. M., and 10 P. M. Recently we have been treating patients with 0.4 gm. total daily dose administered in equal amounts at 7 A. M. and 7 P. M. with satisfactory results. During the three weeks' period immediately before operation, Lugol's solution is administered in an effort to reduce the friability of the thyroid gland found at surgery when the patient is treated on thiouracil alone. The week before surgery the thiouracil is discontinued and the patient is treated finally with iodine.

In preliminary clinical studies thiobarbital appears to exhibit a more active antithyroid effect in lower dosage than does thiouracil, but at higher dosage levels it appears to be slightly less active than comparable doses of thiouracil. It is suggested that the treatment be inaugurated with a dosage of 50 mg. daily. This may be increased to a dosage of 100 mg. daily in severe cases. Total daily doses exceeding 100 mg. are rarely indicated.

Several patients who could not tolerate thiouracil because of temperature reaction or skin rash have been successfully managed with diethyl thiobarbituric acid.* The drug has been of particular interest in the management of patients who are intolerant to thiouracil or thiourea. It is urged that the management of these patients be carefully controlled with repeated observations of the basal metabolic rate, pulse rate, and blood cholesterol. They should have observations of the red blood count, hemoglobin concentration, and total differential white cell counts at the repeated intervals as executed in the use of thiouracil.

6. Plummer, H. S., and Boothby, W. M.: Value of Iodine in Exophthalmic Goiter, J. Iowa M. Soc. 14: 66-73, Feb. 1924.

7. Lahey, Frank H.; Bartels, Elmer C.; Warren, Shields, and Meissner, William A.: Thiouracil—Its Use in the Preoperative Treatment of Severe Hyperthyroidism, Surg., Gynec., & Obst. 81: 425-439, Oct. 1945.

*Experimental supply provided by Dr. George R. Hazel, Abbott Laboratories, Chicago, Illinois.

Thiouracil or thiobarbital reduces the elevated metabolic rate of hyperthyroidism to normal if it is administered over a sufficient length of time, and there is a fairly gradual disappearance of all the hyperthyroid manifestations except those of the eyes when eye signs are pronounced before treatment is begun. The rapid decline in the basal metabolic rate and the gradual increase in the weight of the patient are demonstrated, re-

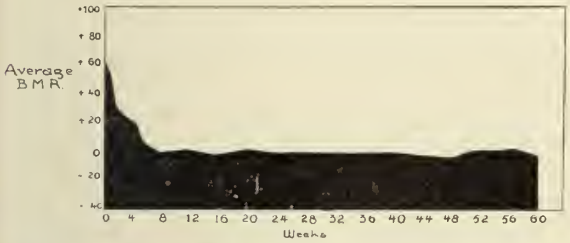


Fig. 1—Response of basal metabolic rate in 28 cases of moderate to severe thyrotoxicosis under thiouracil or thiobarbital medication.

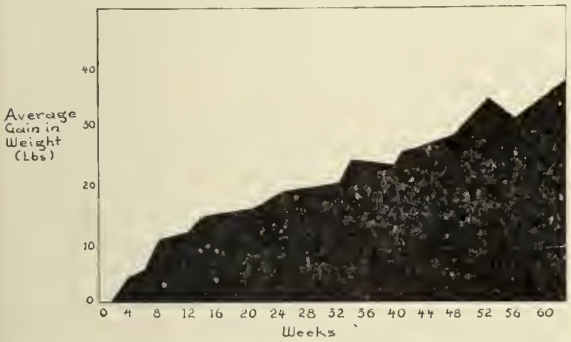


Fig. 2—Average weight gain in 28 cases of moderate to severe thyrotoxicosis under thiouracil or thiobarbital medication.

spectively, in Figures 1 and 2. This group of patients included 25 patients treated with thiouracil, which have been previously reported[8] and three cases which were managed with thiobarbital. In addition to the decline in the basal metabolic rate and the gain in weight, the patient shows a decline in his pulse rate and a gain in his physical strength, and develops a sense of well-being. He comes to surgery in an excellent condition and usually tolerates the surgery without any noticeable change in pulse rate or blood pressure.

The danger of agranulocytosis or leukopenia developing while thiouracil or thiobarbital is being administered is the greatest hazard encountered in these forms of therapy, and Kracke[9] has advised that white cell and differential counts be performed twice each week during the first month, and weekly thereafter. Agranulocytosis has been reported as early as the second week and as late as the ninth month and usually develops quite suddenly.[10] Other toxic manifestations which occur under the treatment of patients with these drugs include fever reactions, skin eruptions, scleroderma and swelling of the salivary glands.

DIET

The caloric requirement of the hyperthyroid patient is multiplied many-fold as prompted by the excess thyroxin distributed throughout the body. Such patients should receive from 3500 to 5000 calories daily, supplemented with multiple vitamin needs, especially thiamine chloride. Fortunately, the dietary requirements are easily met in a patient whose increased metabolism has been reduced by thiouracil treatment.

There is a greater demand for fluids concurrently with higher metabolic rate in the toxic goiter patient. These needs are readily supplied by fluids orally, but it may be necessary occasionally to limit the fluid intake in patients with cardiac decompensation.

CONTROL OF COMPLICATIONS

The patient with cardiac decompensation is given active treatment to relieve the congestive failure before an operation is performed. The administration of iodine or thiouracil and rest in bed will relieve the majority of cases. When this procedure is not sufficient, ammonium chloride, aminophyllin, and occasionally a mercurial diuretic may be given to rid the patient of his edema. There are various opinions as to the advisability of using digitalis. Pemberton[11] has indicated the preference of omitting the use of digitalis in this class of patients except for those who fail to compensate without bed rest. Keeton[12] on the other hand feels that digitalis should be used in thera-

8. Guthrie, Robert F.: Fundamentals in Surgical Preparation of Thyrotoxic Patients—Use of Thiouracil, The Southern Surgeon, 13: 111-120, February 1947.

9. Kracke, Roy R.: Personal Communication.

10. Astwood, E. B.; Biswell, A., and Hughes, A. M.: The Antithyroid Activity of Thiobarbital (5, 5-Diethyl-2-Thiobarbituric Acid), Endocrin. 36: 72, Jan. 1945.

11. Pemberton, J. DeJ.: Goiter: Management of Poor Surgical Risks, Arch. Surg. 20: 591-606, 1930.

12. Keeton, Robert W.: The Heart and Circulation in Patients with Hyperthyroidism, Surgery 16: 657-667, 1944.

peutic doses when heart failure exists. Auricular fibrillation only occasionally demands special treatment. If the cardiac failure is associated with chronic fibrillation, the use of digitalis is desirable. If heart failure is precipitated by a bout of paroxysmal fibrillation, quinidine should be given by mouth, and therapeutic dosages of digitalis should be added if restoration of normal rhythm is delayed. When auricular flutter persists after a reasonable period of rest and medication with iodine or thiouracil, the use of quinidine is advisable. In addition to the above methods which are available for combating congestive heart failure, sufficient food must be supplied to afford needed calories and adequate proteins to protect the body reserves.

Surgery on the diabetic patient must be delayed until the diabetes is under control. The severity of the diabetes is greatly increased when associated with hyperthyroidism. The caloric requirements are 80 to 100 per cent higher than the patient's basal diet. Diets of this order must be given the patient, and insulin increased as needed. Preoperative and postoperative care must be constant and detailed, as the metabolic disturbance may be severe following surgery.

CRITERIA FOR OPERATION

It is necessary to choose a time for the operation when the patient's clinical manifestations fit into a so-called remission. The methods of determination of operability are quite arbitrary and are subject to individual variation by different clinicians. It is for this reason that we have attempted to set out certain specific objectives in estimating the clinical condition of the patient for the proposed surgery. The ones outlined below coincide closely with those advocated by Cole.[13]

1. *Gain in Weight*: This is the most important single requirement in determining the ability of the patient to undergo surgery. The severely toxic thyroid patient should never be submitted to thyroidectomy when he has failed to show a distinct weight gain. There is no iron-clad rule as to the amount of weight an individual case should have gained. However, the patient who is obviously malnourished and markedly underweight should show a greater increase in weight than a patient who has lost only a few pounds. In addition to the gain in weight, the patient manifests a gain in strength and he will indicate that he can climb more steps without tiring or can walk a greater distance with ease than before receiving medication. This gain in strength is associated with a sense of well-being by the patient.

2. *Pulse Rate*: In patients who are receiving treatment with Lugol's solution, the pulse rate should show a decrease to a level of 110 or below, and those patients under thiouracil medication should show a decline in pulse rate to 100 or less. If the Lugolized patient develops a tachycardia of 130 or above on slight exercise or excitement, it is considered that the patient's toxicity is greater and cardiac reserve lower than other signs may indicate; while a tachycardia of 110 or more with a patient under thiouracil medication under similar circumstances requires a closer evaluation of the patient's cardiac status.

3. *Basal Metabolism Rate*: The basal metabolism rate provides valuable information if taken in consideration with the other available data. Patients with a basal metabolic rate of over 50 after iodine therapy or patients with a basal metabolic rate of over 35 following thiouracil medication are likely to have considerable reaction following an operation. The surgeon must bear in mind that there is considerable variation in the performance of basal metabolism by different technicians and that the procedure is a difficult one to perform.

4. *Response to Iodine or Thiouracil Therapy*: There should be a definite decrease in the intensity of most of the symptoms such as nervousness, excessive sweating, sleeplessness, and weakness, and a distinct weight gain should be demonstrated. The patient receiving thiouracil will show a more marked reduction in his toxicity than a patient receiving iodine therapy. The clinical manifestations of hyperthyroidism will improve with a gain in weight, reduction in pulse rate, and a decline in the basal metabolism of the patient.

SUMMARY

The important features in the preoperative preparation of the hyperthyroid patient include a high caloric diet, adequate intake of

13. Cole, Warren H.: Factors Influencing Operability and Mortality Rate in Goiter, Surgery 16: 688-699, 1944.

fluids, and the administration of iodine in mild cases and thiouracil in more severe cases, with iodine as an adjunct in the final stages. Thiouracil is providing greater safety in this latter group of patients undergoing surgery. It is important that complications such as diabetes and cardiac decompensation be controlled previous to operation. The attainment of specific objectives in the preparation of hyperthyroid patients will assure a more uniformly safe conduct of the surgical procedure.

BRACHIAL NEURALGIA

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The term *brachial neuralgia* is generally synonomous with the term *brachialgia*. Both of these conditions are symptoms rather than diseases and merely refer to a condition in which pain in the shoulder and arm is a prominent complaint. This complaint may of course be present as part of the picture in many diseases. The type of pain and the associated symptoms frequently enable the examiner to distinguish one cause from the other.

Pain in the arm may arise from

- Lesions of the brain.
- Lesions of the spinal cord.
- Lesions of the spinal nerve roots.
- Lesions of the brachial plexus and its components.
- Lesions of the individual brachial nerves.
- Local lesions of the arm.
- Pain in the arm and shoulder from reflex sources.

LESIONS OF THE BRAIN

Many investigators[1] state that peripheral pain does not arise from cortical stimulation. I have, however, seen two patients with Jacksonian sensory seizures who had definite sensations of pain in the extremity at the time the sensory seizure began. This is a rare cause of pain in the arm and is in my experience always associated with localized convulsive movements.

Lesions of the thalamus, the large sensory ganglion buried in the middle of the brain, may cause a distinctive type of pain. Although thalamic pain can occur with almost any type of lesion, such as a neoplasm or arterial thrombosis, it is most frequent in thrombosis of the thalamo-geniculate, a small perforating artery. The resulting syndrome is known as the *thalamic syndrome*. If the lesion is on the left there is a right hemiplegia, blunting of all forms of deep and superficial sensation on the right, and a very peculiar excessive reaction to sensory stimuli on the right. Touching or rubbing the right side may produce intolerable, indescribable burning pains, and sometimes severe paroxysmal pains occur spontaneously. The fact that the sensory changes are seldom limited to the arm and are accompanied by the characteristic findings above greatly aids in distinguishing this cause of pain in the arm from the others.

LESIONS OF THE SPINAL CORD

Abnormalities of the lower cervical spinal cord itself, such as tumors, syringomyelia and degenerative conditions, rarely produce pain until they have also involved the nerve roots. If, in addition to a nerve root type of pain, one finds spasticity, paralysis or sensory changes in the lower extremities, a lesion of the spinal cord itself should be suspected. Lumbar puncture may show a block in the cerebrospinal fluid circulation and an increased protein, but the puncture should be done with caution due to the danger of the sudden change in pressure relationship producing a transverse myelitis. The final diagnosis may be made by x-rays, including a myelogram.

LESIONS OF THE NERVE ROOTS

There are a number of conditions which may involve the cervical spinal nerve roots between the point where they leave the spinal cord and where they form the brachial

1. Fulton, John F.: Physiology of the Nervous System, Oxford University Press, Oxford Medical Publications, 2nd ed., page 351.

plexus. If the anterior roots alone are involved, motor symptoms of local paralysis, atrophy and fibrillation occur. It is only when the dorsal, or the mixed, roots are involved that the patient complains of pain in the arm. If the roots are involved within the spinal canal or in the intervertebral foramina, anything which produces a sudden rise in intraspinal pressure will cause an exacerbation of pain and the pain may shoot down the arm in the area of supply of the involved root or roots. This type of pain is known as *radicular pain.* Conditions involving the nerve roots may be generally divided into *inflammatory* and *mechanical* types.

INFLAMMATORY

Herpes zoster or shingles is due to a virus infection of the dorsal root ganglia. There are only two periods in this disease when diagnosis may be difficult. The first is in the prodromal period of two to three days before the characteristic vesicles appear when the patient's only complaint is slight fever and a severe burning pain in the arm. The second period is after the vesicles have disappeared. If the eruption is slight the patient may not notice them and may continue to complain of severe post-herpetic pain. This pain is usually unrelieved by any drug, and sometimes even chordotomy does not help. Careful questioning about the presence of vesicles and search for scars will disclose its origin.

Radiculitis is an ill-defined condition probably due to a virus infection of the nervous system. It may be manifested by radicular pains in one or both upper extremities, slight fever, flaccid paralysis of muscles in the involved areas, and by an increased protein in the spinal fluid. The lack of increased cells in the spinal fluid and the transiency of the paralysis help to distinguish it from poliomyelitis. *Arachnoiditis* is probably a closely related condition but is more chronic. This latter disease causes more constant radicular pains, and motor phenomena due to chronic thickening of the meninges. Occasionally a spinal fluid block may occur. Pain in the back in the involved area is frequently a prominent symptom in arachnoiditis. Roentgen therapy may be beneficial in this condition and in herpes zoster. Arachnoiditis can sometimes be treated surgically.

If the patient gives a history of having developed acute brachialgia and motor weakness following an injection of some vaccine or serum, the possibility of *post sero-therapeutic neuritis* must be kept in mind.

MECHANICAL LESIONS OF THE NERVE ROOTS

Anything causing acute or chronic encroachment on one of the nerve roots may give rise to the radicular syndrome. Formerly it was thought that postural abnormalities and sprains and strains of the cervical spine might give rise to nerve root compression, but it now appears likely that the majority of cases so diagnosed probably had herniated cervical discs. It is surprising, however, how many times a search for the cause of pain in the arm has led to the discovery of an unsuspected and sometimes long standing fracture dislocation of the lower cervical spine. If the lateral roentgenograms are taken with the patient's head in positions of both flexion and extension, latent dislocations may be disclosed which would not be apparent in the ordinary lateral view. Generalized hypertrophic arthritis of the cervical spine may sometimes be associated with radicular pain, but, in my opinion, most cases showing localized hyperthrophic arthritis are cases of herniated nucleus pulposus. If a routine cervical roentgenogram is taken in all patients with brachialgia, a few patients will be found in whom the root pain is due to tumors of the spine, Pott's disease of the cervical spine, etc.

The syndrome of the *herniated cervical nucleus pulposus* has recently come to our attention more and more frequently. Many of the cases previously described as "brachialgia due to cervical arthritis" can be recognized in retrospect as instances of herniated cervical nucleus pulposus. We will concern ourselves only with the syndrome occurring when the nucleus herniates laterally, for midline herniations produce all the symptoms of cord tumor and must be treated as such. When the extruded nucleus herniates laterally, the nerve root is compressed in the intervertebral foramen, and radicular pain, sensory changes and motor symptoms may occur, depending on which root is involved. X-rays[2] usually show

2. Whiteleather, J. E.; Semmes, R. E., and Murphey, Lt. Col. Francis: The Roentgenographic Signs of Herniation of the Cervical Intervertebral Disk, Radiology 46: 213-219, March 1946.

loss of the normal anterior curvature of the cervical spine. If sufficient time has elapsed for the changes to take place, the roentgenograms may also show narrowing of one intervertebral joint space, alteration in the shape of the intervertebral foramen, and lipping or hypertrophic spurring localized to the involved vertebrae, and oblique films may show calcified bits of the nucleus (osteophytes) encroaching on the intervertebral foramen. The cervical myelogram, using radio-opaque substance such as pantopaque, will frequently confirm the diagnosis.

In all cases of herniated cervical disc, regardless of the level, the patient may have a stiff painful neck, pain in the shoulder, medial border of the scapula, arm, and anterior chest wall. If the chest pain is on the left an erroneous diagnosis of angina pectoris may be entertained.[3] In most instances the symptoms are intermittent, and permanent spontaneous remissions undoubtedly occur. The condition is much more common than was suspected five years ago.

If the 6th cervical root is compressed by herniation of the disc below the 5th cervical vertebra, there is weakness of the deltoid and biceps, with reduction in the biceps reflex and usually numbness and loss of sensation in the thumb, index finger and radial side of the arm.

If the 7th cervical root is compressed, the triceps reflex is reduced and the sensory changes are in the index and middle finger and radial side of the forearm.

In the rare instances where the 8th cervical root is compressed, the changes are in the ulnar fingers and ulnar side of the forearm.

A test of considerable diagnostic importance in herniated cervical nucleus pulposus is Spurling's sign. If the head is bent to the side of the lesion and pressure applied to the vertex of the skull by the examiner's hands, a severe exacerbation of pain will be produced in most cases of herniated cervical nucleus pulposus.*

Conservative treatment of herniated cervical nucleus pulposus will give good results in a high percentage of cases. Heat and massage to the neck, plus repeated or continuous halter traction with 6-10 pounds weight (with patient supine or sitting), will frequently induce a remission. The patient may then wear a carefully fitted Thomas collar or neck brace for several months, and it should be adjusted to give him maximum comfort. Surgical measures, consisting of hemilaminectomy and removal of the extrusion, or of merely decompressing the foramen, have given excellent results in both early and late cases.

LESIONS OF THE BRACHIAL PLEXUS

Before considering the lesions which disturb the brachial plexus it is well to review briefly the anatomical relationships. After emerging from the intervertebral foramina the nerve roots lie between the transverse processes posteriorly and the slips of origin of the scalenus anterior muscle anteriorly. In this position they may easily be compressed if the scalenus anterior becomes unusually tense. The nerves pass laterally, lying between the scalenus anterior and scalenus medius where again they may be compressed. The plexus then comes into relationship with the subclavian vessels and together they pass through the opening between the first rib and the clavicle. In this location they may be compressed if the space is narrowed, or they may be acutely angulated if the arm is abducted, the clavicle acting as a fixed point. Another point of potential angulation and compression of the plexus and vessels in abduction of the arm is at the point where they hook beneath the pectoralis minor and its insertion into the coracoid process.

A number of syndromes have been described in which the plexus and the vessels, or the plexus alone, are encroached upon some place during their course from the intervertebral foramina to the axilla. In most of them the patient complains of gradual onset of numbness and tingling in the fingertips, spreading upward, and associated with a greater or lesser amount of pain in the upper extremity generally. The flexibility and skill in using the hands may be reduced, and if the subclavian artery is involved, circulatory embarrassment and even gangrene of the fingertips may occur. The symptoms may be unilateral or bilateral.

3. Josey, Colonel Allen Izard, and Murphey, Lt. Col. Francis: Ruptured Intervertebral Disk Simulating Angina Pectoris, J. A. M. A. 131: 581-587, June 15, 1946.

*This should be performed with care due to the danger of increasing the herniation.

They characteristically vary from time to time and are usually worse when the patient is excessively fatigued. Objective sensory and motor changes in various nerve distributions may or may not be present.

With aging there is a gradual lowering of the shoulder girdle and a consequent narrowing of the space between the first rib and the clavicle. Therefore we see these symptoms begin to appear most frequently after the age of 20. They are sometimes referred to as acroparesthesias, and in writing on this subject Walshe[4] found the syndrome frequent during the war in women forced to undertake unaccustomed manual labor. The lifting and manual labor, coupled with excessive fatigue, presumably depressed the shoulder girdle further so that costoclavicular compression of the plexus occurred. He found that more frequent rest, plus support of the arms in an armchair or in bilateral slings, together with prohibition of heavy lifting, usually caused rapid recession of the condition. A similar condition has been described in soldiers[5] carrying heavy packs on their shoulders. In the types above, the symptoms are worse when the arms are dependent, but White[6] described a syndrome where similar symptoms occurred only when the arms were held in prolonged hyperabduction, such as when sleeping or working with the arms over the head. Correction of this sleeping or working habit relieved his patients of their symptoms.

If a cervical rib is present, or the first rib is anomalous or deformed[7] the costoclavicular space is further narrowed and the symptoms develop more easily. Palpation in the supraclavicular space will frequently disclose these anomalies, and x-rays will also show them. In these conditions, and also in refractory cases of compression by a normal first rib, resection of a portion of the offending structure will frequently give relief, but no stump must be left which can produce residual irritation.

The scalenus anterior syndrome is clinically almost indistinguishable from the above costoclavicular syndromes, and many times from herniated cervical nucleus pulposus. Mild injuries to the lower cervical spine may produce reflex spasm of the anterior scalene, causing compression of the plexus and vessels, and spasm of this muscle may play a large part in producing many of the symptoms seen in the costoclavicular syndrome and even in herniated cervical nucleus pulposus. Heat and massage to the scalenus anterior, or procaine injection of this muscle will sometimes give relief. The treatment of choice, if conservative measures fail, is section of this muscle.

The *Pancoast syndrome* is the result of a tumor involving the apex of the lung on one side. Roentgenograms show destruction of the posterior portions of the first or second ribs and a sharply defined soft tissue shadow at the apex, best seen with the clavicles depressed. The patient complains of pains and sensory changes in the ulnar distribution; and, in addition, involvement of the sympathetic chain is manifested by myosis, drooping of the lid, and enophthalmos on the same side. Respiratory signs are slight or absent. Life expectancy is about one year.

Of course, other abnormalities of the supraclavicular space, such as aneurysms and neoplasms, may cause a pain in the arm by brachial plexus involvement, but they are usually diagnosed with ease.

LESIONS IN THE ARM

Although a full discussion is not within the scope of this paper, it is well to mention that pain in the arm may occur when nerve fibres are involved by neuromas, aneurysms, osteomyelitis, and other infections. Myalgias, multiple neuritis, arthritis and arthralgias usually offer little difficulty in diagnosis.

REFLEX CONDITIONS

Pain in the arm and shoulder may also be seen in conditions such as erythromelalgia, Reynaud's syndrome, thromboangiitis obliterans, psychoneurosis, angina pectoris, and affections of the diaphragm.

4. Walshe, F. M. R.: On "Acroparaesthesia" and So-Called "Neuritis" of Hands and Arms in Women; Their Probable Relations to Brachial Plexus Pressure by Normal First Ribs, Brit. M. J. 2: 596-598, November 3, 1945.

5. Falconer, M. A., and Weddell, G.: Costoclavicular Compression of Subclavian Artery and Vein; Relation to Scalenus Anticus Syndrome, Lancet 2: 539-543, October 30, 1943.

6. Wright, Colonel Irving S.: The Neurovascular Syndrome Produced by Hyperabduction of the Arms, Am. Heart J. 29: 1-19, January 1945.

7. White, J. C.; Poppel, M. H., and Adams, R.: Congenital Malformations of First Thoracic Rib; Cause of Brachial Neuralgia Which Simulates Cervical Rib Syndrome, Surg., Gynec. & Obst. 81: 643-659, December 1945.

ROCKY MOUNTAIN SPOTTED FEVER

CASE REPORT AND DISCUSSION OF THERAPY

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and

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Rocky Mountain spotted fever is a disease that is rarely seen in Alabama. We take this opportunity to report a case of it for three reasons. First of all, this is the first case to be reported in the literature from Jefferson County in which the diagnosis of Rocky Mountain spotted fever has been proven by a complement fixation test. In the second place, the details of treatment which were used in this case apply to a severe Rickettsial disease which occurs rather frequently in Alabama, and which is a common therapeutic problem. We refer to typhus fever. Finally, the therapy, and technique of therapy, employed in the case which we are to discuss is equally applicable to any severe infectious process such as pneumonia or meningococcal meningitis, or any other severe or overwhelming infection. For these reasons, we have felt that the following case report and discussion will be of value to clinicians engaged in seeing a wide variety of patients presenting problems similar to those presented in this case.

CASE REPORT

On July 21, 1945, this six year old white male child was admitted to the Hospital with a chief complaint of fever, vomiting, and a rash. The history was supplied by the parents.

The present illness began six days prior to admission when the child began to vomit. This vomiting was attributed to a dietary indiscretion, and the family was not alarmed. He vomited all liquids and food taken for the ensuing twenty-four hours, and on the following day the parents noted a "rash" had developed on the upper portion of his arms, and anterior chest wall, and that the child "had a fever." On that day, the family physician was consulted and medication prescribed. In spite of therapy, the child continued to have a high fever and complained of a severe headache, abdominal pain, and appeared apathetic and severely ill. The parents noticed that he was very irritable, lethargic, and that the rash was gradually spreading over the entire body. During the time elapsing between the onset of the illness and admission to the hospital, the child's condition slowly became worse, and all therapy was ineffective. He was brought into the hospital for diagnosis and treatment.

There was no history of diarrhea, urinary symptoms, sore throat, "cold," sore ears, or joint symptoms. There had been no convulsions and no stiffness of the neck. The patient had developed a mild, non-productive cough two days prior to admission.

On direct questioning, it was found that the parents had removed several ticks from the patient during the two weeks prior to admission. However, they could not describe them, nor could they remember the exact day of removal. The parents had not paid any particular attention to the ticks because they had found them on the child numerous times before.

The past history revealed that the child had had measles and pertussis in infancy, and had been immunized for smallpox and diphtheria but not for typhoid.

The family history was non-contributory.

Physical examination revealed a fairly well developed and nourished young, white male child, appearing to be acutely ill, and delirious. The temperature was 104, the pulse 130, the respirations 30, and the blood pressure 100/70.

In addition to the marked and obvious mental derangement, it was noted that the skin was hot and dry, and showed a diffuse generalized hemorrhagic maculopapular rash with lesions varying from two to six millimeters in diameter. Between these lesions, the skin was erythematous and flushed. The skin over the scrotum was red, and showed several large hemorrhagic areas eight to ten millimeters in diameter. This rash did not fade on pressure.

The ears, eyes and throat were negative except for a slight injection of the oral pharynx. The tongue was dry. The neck showed a few small shotty, non-tender cervical lymph nodes.

There were a few coarse, moist rales posteriorly throughout both lung fields. The heart was rapid in rate, but not enlarged, and there was a soft grade 1 apical systolic murmur.

The abdomen showed the spleen to be enlarged to three fingerbreadths below the left costal margin, and slightly tender on palpation. The lower border of the liver was not made out.

The extremities were negative, except for the rash. Examination of the nervous system revealed no abnormalities.

Admission laboratory findings were as follows: Red blood cell count 4,020,000, hemoglobin 84 percent, white blood cell count 7,350; and the smear showed 67 percent polymorphonuclear cells, 30 percent small lymphocytes, and 3 percent plasma cells. Urinalysis revealed a specific gravity of 1.010, a faint trace of albumin, and was negative for sugar. Microscopic examination of the urine revealed a few hyaline and finely granular casts, with an occasional red cell and white cell per high powered field. Examination of the stool showed no abnormalities. Cultures of the stool, urine and blood were obtained; blood was taken

for agglutinations for typhoid, paratyphoid, Proteus OX19, and B. Abortus.

A clinical diagnosis of Rocky Mountain spotted fever was made.

Course in the Hospital: For the first six days of hospitalization the patient ran a plateau type of fever curve, with the temperature varying from 102 degrees to 104.6 degrees. On the morning after admission the child appeared acutely ill, dehydrated, irrational, and had a pulse of 130 which was weak and thready, and a blood pressure of 80/50. Blood studies at this time showed an NPN of 155 and a total protein of 4.4 milligrams percent of serum, with an albumin globulin ratio of 1.8/1. Blood cultures at this time were negative.

Because of evidence of shock, marked plasma protein depletion, and prerenal azotemia, intensive intravenous therapy was begun. Primary importance was attached to the infusion of plasma, and secondary importance was given to intravenous therapy with glucose and saline. Heavy vitamin therapy was begun. For the next eight days, the patient received 500 cc. of plasma every 24 hours, together with 1,000 cc. of 5 percent glucose with 4.5 grams of sodium chloride intravenously every 24 hours. This therapy was given on the basis of clinical observation, and was followed by the NPN level and the total protein level. However, as we will show later, it may possibly be considered a mistake not to have guided therapy by the use of daily hematocrit determinations, carbon dioxide combining power determinations, and serum chloride determinations.

On the third day, penicillin was begun for prophylactic reasons, and was continued for the next ten days. It should be noted at this point that penicillin was used here purely to prevent the development of secondary infection by organisms which are sensitive to the antibiotic. We did not expect any beneficial effect on the Rickettsial infection, and none was evident.

Agglutinations by the third day had become positive for Proteus OX19 at one plus in a dilution of 1/320. Spinal tap revealed no gross abnormalities, and the culture of the spinal fluid was negative. During the next two days, the patient's condition remained unchanged, except that the blood pressure returned to normal.

On the sixth hospital day, blood studies revealed a total protein of 5.9 grams percent of serum, and agglutinations for Proteus OX19 were positive one plus in a dilution of 1/160. Complement fixation test on blood taken that day was reported by the U. S. Public Health Service Laboratory in Bethesda, Maryland as negative for typhus fever and positive for Rocky Mountain spotted fever in a dilution of 1/512. The blood, urine, stool and spinal fluid cultures continued to be negative.

The NPN by now had dropped to 35 milligrams percent on the sixth hospital day. We wish to emphasize here this rapid decline from an NPN of 155 to an NPN of 35 milligrams percent. We will refer to this later.

The icteric index was 9, and the Van den Bergh was normal. The patient had shown, over the course of these seven days, a persistent drop in hemoglobin and red count; and the urine showed a trace of albumin, few casts, and red blood cells. The white blood count remained normal.

On the seventh hospital day, para-amino-benzoic acid was begun intravenously. Approximately 400 milligrams were given, but there was no effect on the course of the disease from the exhibition of this agent. It has been suggested that this drug may be an important therapeutic adjunct in typhus fever when used early in the disease, and it was for this reason that it was administered to this patient with a Rickettsial disease. However, we were unable to secure any of the drug in quantity or soon enough to administer it sufficiently early and in sufficient quantity to expect a possible beneficial result.

On the tenth and eleventh hospital days, the patient was given 250 cc. of citrated whole blood without reaction. It had been desired to administer whole blood prior to this time but it was delayed because of inability to secure suitable donors. We wish to point out the fact that whole blood transfusions were given without reactions, because previous investigators have reported that blood transfusions are attended by an increased percentage of reactions in patients with Rocky Mountain spotted fever.

During the first ten days of hospitalization the patient was confused and delirious. At times he voided involuntarily, but, for the most part, catheterization was necessary. Abdominal distention was relieved by enemas, gastric suction and prostigmine. He remained in an oxygen tent from the third to the fourteenth day of hospitalization. Alcohol sponges and ice caps were used as indicated by the degree of fever. Coramine was given on one occasion because of slow and shallow respirations.

The child was able to take only a slight amount of nourishment by mouth.

After seven days of a plateau type of temperature, the temperature began to drop to normal in the morning, spiking to 103 degrees in the afternoon. By the tenth day definite improvement began to be noticed. On the twelfth day a check of the total protein of the blood revealed a value of 6.8 milligrams percent of serum. During the convalescence the rash gradually faded, leaving a yellowish discoloration of the skin, and the patient was finally discharged on the 23rd hospital day completely recovered, but still weak.

DISCUSSION

The importance of an early diagnosis of Rocky Mountain spotted fever must be emphasized. It must be remembered that this disease is present in Alabama. We have personally encountered two cases of it in the last eighteen months, though this is the only case to be reported in the literature. It is our belief that many cases of Rocky Mountain spotted fever are being diagnosed as typhus fever of the severe sort. As in the case here reported, agglutinations in Rocky Mountain spotted fever may yield medium

high titers in the Proteus OX19 agglutinations. It is then easy to see that a mistake in diagnosis can be easily made. However, a specimen of the blood from any severe case of what appears to be typhus fever should be sent to the U. S. Public Health Service Laboratory at Bethesda where the complement fixation test for Rocky Mountain spotted fever can be done. In addition, the clinician should carefully inquire into a history of tick bites. If such a history can be elicited, there should be little question but that one may be dealing with Rocky Mountain spotted fever.

Diagnosis must be emphasized for the additional reason that it is necessary to institute adequate and correct treatment early both because of the danger of the development of irreversible shock and because proper treatment can materially reduce the length of the illness.

Harrell[1, 2] has recently emphasized that the treatment which has been used in the past for Rocky Mountain spotted fever is often not only ineffective but actually deleterious. His work has been of value in pointing out the importance of an understanding of the pathologic anatomy and pathologic physiology in treatment. We wish to emphasize the role that pathologic physiology and anatomy should play in the determining of the type of treatment used not only in Rocky Mountain spotted fever but also in typhus fever, and in any severe infectious process.

The Rickettsia responsible for Rocky Mountain spotted fever is present not only intracellularly but also within the nuclei of the vascular endothelium.[3] It produces vascular damage, resulting in necrosis and thrombosis, and endarteritis of small arteries, arterioles and capillaries. The lesion is widespread, producing vascular damage throughout the body, and having a definite effect on the function of the cardiovascular system, the liver, possibly the kidney, and certainly the central nervous system. The effects which are of primary importance in treatment are those on the cardiovascular system and the liver.

It is not generally realized the functional derangement produced by these pathologic changes is both specific and non-specific, and very important in treatment.

1. *Hypoproteinemia.* Two factors are believed to contribute to the occurrence of this in Rocky Mountain spotted fever, as well as in severe typhus fever.[4] In the first place, as Harrell states, there is definite specific liver damage in severe cases, and, because of this, protein synthesis is decreased even though adequate oral nutrition may be maintained. In the second place, there is an actual loss of blood protein from the circulating blood in these diseases. This is supposedly due to capillary damage. In the third place, it is well known that high fever increases the bodily requirements for protein because of the high metabolic rate.

The measure of liver damage in this disease can be followed by the hippuric acid test, and in severe cases by deviations from the normal of the Van den Bergh and icteric index.

2. *Hypochloremia.* This is due to the loss of chlorides across the damaged capillary endothelium into the interstitial spaces, plus the excessive loss of fluids through sweating. Especially if this is accompanied by a marked degree of hyperventilation (as may be common in any high fever), a severe degree of alkalosis may develop.[5]

3. *Prerenal Azotemia.* This is secondary to dehydration and hemoconcentration. As was noted in the case report, the elevation of the NPN may be quite marked, and may respond dramatically to proper hydration. The ease with which an elevated NPN may develop in Rocky Mountain spotted fever, and typhus fever, may occasionally lead to an error in diagnosis. In this respect, Rocky Mountain spotted fever and epidemic typhus fever, of the Mediterranean area, are

1. Harrell, G. T.; Wolff, W. A., and Venning, W.: South. M. J. 38: 367-371 (June) '45.

2. Harrell, G. T.; Wolff, W. A., and Venning, W.: J. A. M. A. 126: 929-934 (Dec. 9) '44.

3. Topping, H. H.: Rocky Mountain Spotted Fever, Med. Clin. North America 27: 722-753, May 1943.

4. Woodward, T. E., and Bland, E. F.: Clinical Observation in Typhus Fever with Special Reference to the Cardiovascular System, J. A. M. A. 126: 287-293 (Sept. 30) '44; volume 126, p. 287-293, 1944.

5. Freedberg, A. S., and Altschule, M. D.: The Effects of Infection on the Circulation, New England J. Med. 233: 560-567 (Nov. 8) '45.

closely alike. Yeomans and his associates[6] have recently pointed out the occurrence of azotemia in epidemic typhus fever.

4. *Infectious Shock.* As brought out recently by Freedberg and Altschule,[5] infectious shock is a non-specific occurrence that may be met in any severe infection, and may tip the scale against the patient. For that reason we feel it important to emphasize that so-called infectious shock does occur in Rocky Mountain spotted fever, and great care must be taken in treating it. It will be noted in the case report above, that shock was noted on the second hospital day. It should be remembered that the state of peripheral circulatory failure in acute infection may be recognized clinically by the appearance of the patient, his pulse, skin, and blood pressure, and by the fact that it is an event that usually appears early in the disease. The factors which precipitate its development are those of dehydration with decreased circulatory blood volume; and in Rocky Mountain spotted fever the specific capillary damage produced by the Rickettsia certainly adds an additional predisposing factor. It should be reemphasized that the use of digitalis and stimulants is of no value in the management of shock occurring in acute infection. The most important way of treating this type of shock is to prevent its occurrence, and, after it has developed, to use plasma and blood properly and to administer crystalloids as indicated by blood studies.

5. *Miscellaneous Physiological Derangements.*

(a) Anemia. It will be noted in the case report that anemia was definite and progressive in its development. This occurrence places an undesirable burden on the cardiovascular system which in Rocky Mountain spotted fever is especially singled out for attack. Therefore, great care should be taken to prevent anemia by the adequate use of whole blood transfusions.

(b) Vitamin Deficiency. It is a well known fact that vitamin requirements are increased during any acute infectious process. We feel that this aspect of the acute febrile illness is too often overlooked. A depletion of the body vitamin reserve not only lowers the organism's ability to combat disease but also places an undesirable strain on the cardiovascular system. It has been recognized that there is a specific deleterious effect both on the heart and on the peripheral vascular system from a deficiency of thiamine and ascorbic acid.

From a consideration of the pathologic physiology, we wish to point out that it will at once become apparent that one of the most important steps in treating Rocky Mountain spotted fever is to supply the body with ready-made and already synthesized proteins. This can easily be done by the use of plasma or whole blood. This point has been emphasized recently by Harrell and his co-workers[1, 2] and a consideration of the case report which we have given will show the undoubted importance of this measure. To correct a depleted protein reserve is a step which should be obvious. However, clinicians have completely neglected this in the past, and emphasis and reemphasis must be placed on the necessity of this step. While clinicians have long realized the importance of intravenous hydration, they have consistently neglected the importance of intravenous replacement of acute and chronic protein loss. Furthermore, the use of intravenous crystalloids or distilled water may actually not only be of no help in severe cases of this sort but rather become a burden upon the organism, and, in fact, may tip the scales against the patient unless preceded or accompanied by plasma infusion. This is because it has been noted that repeated or routine use of intravenous saline or glucose may result in extending peripheral circulatory failure and pulmonary edema when the osmotic pressure of the blood has been previously reduced by protein loss.

In some of the most severe cases in which intravenous saline has been administered without attention to the protein depletion, the chloride passing out through the damaged capillaries, and taking proteins with it accentuates the already marked effect of the disease on the low blood protein level.

We do not wish to give the impression that intravenous saline and glucose should be omitted, because they are very necessary in correcting the dehydration present in this, or any severe infectious disease, and in cor-

6. Yeomans, A.; Snyder, J. C.; Murray, E. S.; Ecke, R. S., and Zarafonetis, C. J. D.: Azotemia in Typhus Fever, Ann. Int. Med. 23: No. 5, 711-753, 1945.

recting prerenal azotemia and hypochloremia. We do wish to call attention to the great importance of a realization that the osmotic pressure of the blood is reduced, and that the blood proteins are reduced. Regard must be paid to this point, especially when saline and glucose are being given. Furthermore, it should be recalled that amigen and other intravenous amino-acid compounds may be of no value because of the fact that the liver is unable properly to synthesize proteins in severe cases, and the administration of additional amino-acid may simply serve to embarrass an already overburdened liver. Also, for the same reason, oral protein administration may be inadequate, even if it is given in tremendous daily amounts.

Techniques in Guiding Therapy. As has been brought out above, a knowledge of the pathologic anatomy and pathologic physiology is necessary in the proper treatment of Rocky Mountain spotted fever and its near neighbor, typhus fever, and, for that matter, in any severe infectious disease. Furthermore, therapy can be guided by a few simple clinical and laboratory procedures. Obviously, a keen clinical observation of the patient will afford much information of value. This is especially true in watching for edema, secondary to excessive intravenous fluids, and in watching for beginning pulmonary complications, such as secondary bronchopneumonia. The tongue is a good guide to the general state of hydration of the patient. Obviously, a rapid, weak, thready pulse with a lowered blood pressure affords information as to the development of infectious shock.

Daily observation of the hematocrit level is invaluable as a guide to the state of hydration, and may reveal the deficiency or excess in the fluid balance before the development of clinical signs and symptoms. The fluid intake and urinary output may be measured and recorded from day to day, and this, together with the hematocrit, may be used as a guide in fluid therapy.

Furthermore, the determination of the level of the non-protein nitrogen and blood chloride, and total protein, and albumin-globulin ratio, will serve to indicate the proper use of intravenous crystalloids, plasma, and whole blood. Liver function tests afford indication of the severity of interference with protein synthesis, and therefore serve as a rough guide to the amount of plasma that will be needed. Even though in the present case the liver function tests were negative, nevertheless the determination of the blood protein level showed actual protein depletion, whether due to hepatic dysfunction or to loss of protein across damaged capillaries, or to the effect of the infectious process by its exhaustion of the protein reserve, or to low protein intake.

Frequent red cell counts should be made in order to forestall the development of secondary anemia.

CONCLUSION

1. The first proven case of Rocky Mountain spotted fever in Jefferson County is reported.

2. The importance of awakening interest in the pathologic anatomy and physiology of Rocky Mountain spotted fever and typhus fever is brought out.

3. The prophylactic use of penicillin to avoid secondary infection in Rocky Mountain spotted fever (and typhus fever) is advocated.

4. In view of the fact that there is no specific treatment for this disease (and for typhus fever), the importance of the proper *selection* of supportive therapy is emphasized. The technique of this selection is discussed.

2219 Highland Avenue.

Esophageal Varices—Probably we too seldom consider bleeding from esophageal varices in our differential diagnosis of hemorrhage from the upper gastro-intestinal tract. Even in the absence of hepatic enlargement and ascites we believe that varices should be looked for in every case in which usual roentgen studies fail to demonstrate a lesion. As a rule, varices can be demonstrated on skiagrams but occasionally we have seen them at esophagoscopy after the roentgenologists had delivered a negative report. As we see it, injection of sclerosing solutions into these varices is theoretically rational and practically valuable in prolonging the lives of persons who have hepatic cirrhosis with hemorrhages from their upper gastro-intestinal tracts.—*Howard, South. M. J., March* '47.

ANNUAL MEETING
BIRMINGHAM
APRIL 14, 15, 16

ANALGESIA OF THE BRACHIAL PLEXUS

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This treatise is prompted by the need of widespread knowledge and application of a very useful, and at times, a very necessary method of analgesia. The knowledge that analgesia of the arm may be accomplished by blocking the nerve impulses passing through the brachial plexus is not recent. Halsted made use of the method in 1884.[1] Brachial plexus block is not an "ambitious procedure," nor is it a difficult one to perform. Fear of failure and lack of familiarity with the procedure are the main drawbacks to more widespread use of this method of analgesia, with its many advantages.

INDICATIONS

1. Dread, on the part of the patient, of losing consciousness.
2. Convenience to the patient. The ambulatory status of the patient may be retained.
3. Safety of the patient.

(a) Manipulation and reduction of fractures in the dark of the x-ray room.

(b) Elimination of danger of explosion of anesthetic mixtures administered by inhalation.

(c) Elimination of other dangers attendant upon maintaining anesthesia—inhalation or intravenous in the dark of the x-ray room.

(d) Elimination of hazard of aspirating vomitus when operation and anesthesia must, of necessity, immediately follow ingestion of food or fluids.

4. Tendon repair where the surgeon wants active motion retained, as an aid in identifying and differentiating anatomical structures.
5. Elimination of shock-producing pain in the injured.
6. Uncontrolled diabetes.
7. Presence of pulmonary complication.
8. Alcoholic individuals.
9. Aged persons.
10. Cases of malnutrition and debilitation requiring emergency surgery.

CONTRAINDICATIONS

There is one contraindication to the use of this method and that is the presence of infection in the supraclavicular area.

Shock is not a contraindication nor is the age of the patient. MacIntosh reports employment of the method for persons ranging in age from seven to ninety years.[2]

ANATOMICAL CONSIDERATIONS

The deep structures and skin of the arm, with the exception of that over the upper one-third, are rendered insensitive by brachial block. This plexus of nerves lies between the first rib and the overlying skin, in the area directly posterior to the point where the inner and middle thirds of the clavicle meet.

The nerves that form the brachial plexus (C 5, 6, 7, 8, and T 1, and sometimes T 2) leave the intravertebral foramina in the lower cervical region, and travel along the transverse processes, running between the anterior and posterior tubercles of these structures. It is on these tubercles that the scalene muscles take origin. For the most part the nerves progress downward and outward joining to form a single, slightly flattened trunk which, in conjunction with the subclavian artery, passes over the first rib. The plexus, in conjunction with the subclavian artery, passes over the rib in such close relation to it that, anatomically, a demonstrable groove is seen in this member. The nerve trunk and the artery in their passage across the rib course betwen the scalenus medius and scalenus anticus muscles. These muscles insert on the rib on both sides of the aforementioned groove. The plexus of nerves is inclosed in a sheath of connective tissue springing from the sheaths about the scalene muscles. This latter is of considerable anatomical importance for it is within this sheath that the analgesic solution must be deposited to achieve success. The subclavian vein passes *anterior* to the insertion of the scalenus anticus and is well under the clavicle, in which position it is well protected.

The anterior portion of the plexus containing the fibres of C 8 and T 1 supplies the middle of the forearm, front and back; the

1. Matas: Johns Hopkins Hospital Bulletin 1925, 36,4.

2. MacIntosh and Mushin: Local Anaesthesia: Brachial Plexus. Oxford: Blackwell, 1944.

ulnar border of the forearm; the middle, ring and little fingers, and is in very close relationship with the subclavian artery as it crosses over the first rib, and may even be overlapped by it. This latter is of interest because over-cautiousness in attempting to avoid the artery can cause failure to achieve analgesia in the forearm over the ulnar distribution.

Roughly, the mid-portion of the first rib runs a straight course anteroposterior after it emerges from under the clavicle. It is across this portion between the insertions of the scalene muscles that the nerve trunks pass. This is where the analgesic agent must be placed in attempting to anesthetize the trunk. The first rib, therefore, is the landmark that is the key to success in injection of the plexus.

PHYSIOLOGICAL CONSIDERATIONS

The sensory fibres in any nerve trunk are very susceptible to local anesthetic action and are influenced quite readily by drugs of low concentration. The epicritical senses —temperature recognition, tactile sensation and muscle sense—may remain after pain impulses are abolished. The motor fibres are definitely less susceptible and require stronger concentrations to affect the impulses transmitted through them.

Local anesthetics of the proper concentration temporarily interfere with the normal physiological function of the sensory fibres in a nerve trunk, and prevent any external stimulus from rising above the threshold for painful sensation. The degree of local anesthesia will be proportional to the number of fibres interrupted and will be complete only after *all* have been affected.

INSTRUMENTS

Needles should be of small calibre—22 gauge is suitable—and really sharp to minimize trauma, should the plexus, pleura or blood vessels be punctured. They should be approximately 50 mm. in length and, when possible, should be equipped with stylets as a precaution against letting air into the pleural cavity if this particular viscus be inadvertently punctured.

Syringes should be of glass, for it is important that one repeatedly aspirate to determine the presence or the absence of blood while working in this area. The size is unimportant but the ten cubic centimeter one is easiest to handle.

PREMEDICATION

Premedication is ordinarily not a strict requirement, and is in fact undesirable in individuals who are to remain ambulatory or in cases where haste is imperative. Morphine may be used in non-ambulatory patients mainly to allay apprehension. It should be given in full doses at least one hour before the injection of the analgesic agent.

It is advisable to use the barbiturates except where the ambulatory state of the patient, or the need for immediate emergency measures, does not warrant waiting an hour or more for the beneficial effects of these drugs. In these instances concentration of procaine of over 1% should not be used. The barbiturates should, when used, precede the injection of the analgesic by ninety minutes.

SOLUTIONS

The solution of local anesthetic drugs should preferably be freshly made, isotonic in normal saline, chemically pure and pyrogen free.

Metycaine and procaine are the solutions more commonly used. One percent is the concentration of choice and the one that affords the best results with the least danger of toxic reactions.

Antiseptics have no place in these solutions. Solutions in saline deteriorate on repeated boiling. The most effective solutions are made by mixing dry sterilized procaine powder with sterile pyrogen-free saline solution. These solutions are stable enough to stand boiling or autoclaving twice or three times without their potency being affected.

The degree and duration of analgesia[3] with any particular solution depend upon the drug itself, its concentration, the amount used, and also upon whether it is, or is not, used in solution with epinephrine. Epinephrine by its vasoconstrictor action prolongs the action of these drugs considerably.

The concentration of epinephrine in the analgesic mixture should not exceed 1:150,000 (one drop of epinephrine 1:1000 to each 10 cc.). Stronger concentrations are no more effective. Concentrations weaker than 1:450,000 (one drop of epinephrine 1:1000 in each 30 cc.) fail to cause sufficient vasoconstriction to be of use.

3. Molesworth, H. W. L.: Regional Anaesthesia, London: Lewis, 1944.

In shocked, frail and toxic individuals the concentration of both the solution and the epinephrine used should be reduced by a half or even a third. Metycaine gives a more profound and a longer lasting analgesia in the same concentration volume for volume.

TOXICITY

All the local anesthetic substances discovered up to the present possess the following characteristics: They are poisonous to the protoplasm and paralyze not only the nerve substance but all protoplasm brought into contact with them. They have a close affinity for nervous tissue, paralyzing the function of the latter in high dilution while they produce no noticeable influence on protoplasm of other types. If a sufficient quantity reaches the circulation quickly, a general intoxication is produced apart from the required local action. It is a matter of extreme importance that these general actions do not depend merely upon the dose used but also on the speed of absorption.[4]

Another point worth bearing in mind is that as the drug concentration increases the toxicity probably increases more than proportionately; e.g., a 2% solution is approximately four times as toxic as a 1% solution.

The ability of the liver and kidney to detoxify and eliminate the injected fluid, either in its original state or changed by local chemical forces, is important in decreasing the chances of intoxication.

Because of its vasoconstrictor action epinephrine delays absorption of the analgesic agents into the circulating blood and should be employed for this purpose.

It is worth mentioning that untoward reaction to epinephrine is far more common than to the more generally used analgesic agents. The usual precautions should be taken to guard against possibility of sensitivity.

Signs of Toxicity:

1. Prodromal
   (a) Bradycardia
   (b) Pallor and sweating
   (c) Decrease in blood pressure
2. Actual and more serious
   (a) Cyanosis of face and extremities
   (b) Respiratory oppression
   (c) Convulsions

Treatment should consist of the administration, under intermittent positive pressure, of oxygen by mask, and of a quick acting barbiturate by vein; e.g., pentothal.

3. If tachycardia is in evidence, it must be presumed to be due to systemic absorption of excessive quantities of epinephrine. Cease injection, discard the solution and use subsequently the analgesic agent without epinephrine added.

TECHNIQUE

The technique calls for strict asepsis.

The skin of the supraclavicular region, and of a wide surrounding area, should be prepared by shaving away the hair and scrubbing with soap and water. The application of a colorless antiseptic solution to the skin should follow.

Adequately drape the patient.

THE METHOD

The method is similar to one advocated by Lundy.[4] The patient is placed upon his back on the table with his head turned well away, towards the side opposite to that on which the injection is to be made. The arm on the injection side is held at the side, the forearm across the chest, with the shoulder depressed as much as is possible. This brings the clavicle down and makes for maximal "opening" and flattening of the supraclavicular space.

The junction of the inner and middle thirds of the clavicle is determined and a line projected with colored solution, iodine or merthiolate, directly posterior over the shoulder. This line should, therefore, cross the base or close to the base of the neck. A wheal is now raised upon this line a finger's breadth posterior to the border of the clavicle. The anesthetist takes a position cephalad to the patient and prepares to introduce his first needle through this wheal.

The needle should be passed into the supraclavicular area on a horizontal plane and parallel to the long axis of the patient's body. In individuals of normal size and weight, the first rib should be encountered no deeper than 2.5 to 3.0 cm. beneath the cutaneous surface. If the rib is not met with at this depth on the initial thrust do not go deeper, but withdraw the needle and reinsert at slightly different angles in spoke-like fashion, going laterally at first and then medially until it is found. In the event the

4. Lunday, J. S.: Essentials of Anaesthesia. Philadelphia: W. B. Saunders Company, 1946.

rib is not found after such a search, it should be sought at a slightly deeper level. When the needle is finally in contact with the first rib, apply a syringe, inject ½ cc. of solution and aspirate. It is always a good idea to inject a minute quantity in this manner to clear the lumen of the syringe in the event that it may have become plugged with tissue or fat. With the depth and direction established, any subsequent needles can be placed on the rib with ease and confidence.

A wheal is now raised a half finger's breadth posterior to the first needle and on the same anteroposterior line and the second needle is inserted down to the rib. In a like manner a third needle is inserted a half finger's breadth anterior to the first needle. It is advisable, especially if paresthesias have not been elicited, to use even a fourth needle posterior to these three.

With the needles in place, inject 3 to 5 cubic centimeters of analgesic solution into each, against the rib. This method very effectively places a "bar" of analgesic agent against the first rib in the region where the brachial plexus crosses it, and also insures the deposition of solution within the aforementioned connective tissue envelope about the nerve trunks. As the needles are withdrawn one at a time inject 9 to 10 cubic centimeters between the rib and surface of the skin. Using this method one will occasionally encounter cases where analgesia will result even when paresthesias are not experienced.

This procedure is sufficient for operations up to and including the elbow but it leaves an area of sensitive skin on the inner side of the upper arm. In order to render the extremity insensitive it is necessary to infiltrate the subcutaneous tissues around the arm, garter-fashion, at a level opposite to the lower border of the pectoralis major.

When the tissues are infiltrated subcutaneously as above, 0.5% should always be employed.

The following information is offered as an aid in securing complete analgesia and also as a further aid in minimizing the number of failures. In the above procedure the anterior needle is left in place as a marker. The index finger of the left hand exerts pressure behind the clavicle to force the subclavian artery as far forward as possible. A needle is then inserted beside the remaining needle and through the same wheal. This needle is passed diagonally forward to a point on the first rib that would correspond to a half finger's breadth distance anterior to the needle that is already in place. Solution is injected through both needles in the same manner as described above. Repeated aspiration is advisable as the needle points are brought to the surface in this area. This additional needle-site is purely optional and mentioned to show that other needles can be employed to place a slightly more extensive bar of analgesic agent along the rib and thereby to increase the chances of success.

Using the foregoing technique, the writer has produced analgesia of the arm a number of times while patients were under pentothal. This, of course, made the use of paresthesias as an aid in placing the solution impossible, but, despite this, the analgesia was complete and profound when the pentothal wore off.

It might be mentioned here, and it is a valuable point, that when the analgesia wears off in long drawn out procedures—e.g., multiple tendon repairs, various plastic procedures and the like, the block may be renewed once or repeatedly.

SIGNS TO BE NOTED DURING AND AFTER INJECTION

1. Paresthesias in the form of "shooting pains" or "electric shock."
2. Sensation of warmth with definite rise in temperature of the limb.
3. Feeling of "pins and needles" in the limb.
4. Loss of motor power. This is a sure sign that the pain pathways have been interrupted.
5. Horner's syndrome. With the aforementioned technique this phenomenon should rarely be seen, but when seen, anesthesia will usually result.

COMPLICATIONS

1. Fainting. This condition occurs, but is usually seen only when the procedure is performed with the patient in the sitting position.
2. Pneumothorax. This accident occurs perhaps more than is realized. It is usually only of minor degrees, is transient and is recognized only by x-ray.
3. Puncture of the subclavian artery is really detected by bleeding from the needle or by blood aspirated into the syringe. It is

of little significance provided that procaine is not injected.

4. Phrenic nerve paralysis. This condition, like pneumothorax, is unrecognized except radiologically. It is transient and causes no harm.

SUMMARY

In this paper an attempt is made through a brief general survey to present an interesting and comprehensive study of those facts and factors the knowledge of which is necessary before intelligent and skillful employment of brachial plexus analgesia is possible.

A technique is presented which, in the writer's mind, offers the best chance of achieving excellent results.

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VOLVULUS OF THE SMALL INTESTINE

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Volvulus of the small intestine is not a subject about which a great deal has been written. Nor, except for three case reports, will this paper add a great deal, because there are so few definite things about which to write. Rodney Maingot in his Postgraduate Surgery states, no doubt correctly, that it is impossible to make the diagnosis preoperatively except in very exceptional cases, and such has been our experience. It is with the idea of emphasizing this point that we wish to report three cases, varying in every respect as much as possible.

Case 1. A well developed, well nourished, white male, 12 years of age, complaining of generalized abdominal pain, nausea, and vomiting, all of a rather acute onset about six hours before admission. There was a history of intussusception corrected surgically at the age of three. Examination of the abdomen revealed moderate distention and rigidity, with a palpable mass in the left lower quadrant. Rectal examination was not illuminating. At laparotomy the mass was found to be a grangrenous loop of small intestine, the gangrene resulting from volvulus about an adhesion to the anterior abdominal wall. Twenty inches of intestine were resected and immediate side-to-side anastomosis done. Recovery was uneventful.

Case 2. A 30 year old, white female with pain, tenderness, and rigidity in the right lower quadrant, fever, moderate leucocytosis, and a mass in the right lower quadrant. The case closely resembled an appendiceal abscess, but operation was decided upon, and again the mass was found to be a loop of small bowel involved in a volvulus. The gut was still viable, and after severing an adhesion it was possible to reduce the volvulus. Recovery was uneventful.

Case 3. An obese, 58 year old, white female suffering from pain in the lower abdomen of acute onset, nausea, slight vomiting, fever, and with a pronounced leucocytosis. The patient had been ill for several days before coming to the hospital. Two years before the onset of the present illness she had had a vaginal hysterectomy, without any complications. When she reached the hospital, a Miller-Abbott tube was passed into the duodenum and suction instituted. Two hours later there was sudden relief of pain; the temperature returned to normal, and there developed a profuse purulent vaginal discharge. The suction was discontinued and the patient treated conservatively for 6 days, during all of which time bowel function appeared normal. It was felt that this patient most likely had a malignancy of the bowel with perforation into the bowel, so that fluoroscopic examination of the colon was undertaken, but no lesion was seen. It was then decided to at-

From the Department of Surgery of the F. Hood Craddock Memorial Clinic.

tempt to inject the opening in the vagina with a radio-opaque medium to attempt to discover the exact site of the pathology. At this time, when a speculum was placed in the vagina, we were astonished to find, completely free in the vagina, 40 inches of small intestine, with both ends severed. On operation it was found that a volvulus had occurred with gangrene and sloughing of the involved segment. The proximal and distal openings of the remaining bowel were side-by-side in the most dependent part of an abscess cavity which was draining into the vagina, but apparently the fecal stream was passing from one opening into the other, allowing normal bowel movements. The bowel was anastomosed, but the patient went into profound shock and eventually succumbed.

Aside from the case presentations, particularly *Case* 3, in which there was a spontaneous intestinal resection with what amounted functionally to a spontaneous anastomosis, the purpose of this paper is to emphasize these facts:

1. Volvulus of the small intestine is by no means uncommon, and is extremely difficult to diagnose preoperatively. (In the cases presented it simulated respectively intussusception, appendiceal abscess, and malignant perforation of the colon.)

2. In case of doubt, particularly if there is any vomiting and distention, immediate operation is necessary, because, should a volvulus exist, gangrene will follow with alarming regularity and rapidity and with dire results.

3. One should never do abdominal surgery, even for a simple appendectomy, without being prepared to do major and radical surgery should some more serious condition, of which volvulus may easily be one, be discovered at operation.

SUMMARY

Volvulus of the small intestine is briefly discussed, and three cases presented, in one of which spontaneous resections and extrusion of a segment of gut with functional anastomosis, also spontaneous, occurred.

Our Battle for Freedom—Medicine is not what many people think. It is not just one thing. Medicine, itself, is three things: First, there is a science of medicine; second, there is an art of medicine; and third, I insist there is a soul to medicine.

The science of medicine is not one single science. It is rather a portion of many sciences. For example, it is a portion of the science of chemistry, it is a portion of the science of biology, it is a portion of the science of pathology, etc. It is that portion of the several sciences which are related to the diagnosis, to the prevention and to the treatment of disease.

The art of medicine is still another thing. It is the art and skill by which these sciences are made effective in the prevention and treatment and relief of disease. It is an individual accomplishment of a person. It is as individual as the art and skill of playing a piano, or painting a picture.

Finally, there is the soul of medicine. I should like to go into a more elaborate definition. No one understands or can define the soul, except we do know that it is recognized as the highest attribute of human nature. It is the idealism, the integrity, the interest, the humanitarianism of medicine. Briefly, that is what is meant by the soul of medicine. It is the element in medicine that determines the attitude of doctors, not only towards the science and art but towards each other and towards the public. It is that.

What is the attitude of doctors towards the science and art of medicine? It is said that when Abraham Lincoln died a member of his cabinet walked from the room and said, "Abraham Lincoln now belongs to the ages." I know no other expression that defines medicine. Do we have a monopoly? Not on your life. Too many people, too many ages, too many nations have made contributions to the science and art of medicine for the profession to lay claim to its ownership. The relationship of doctors to the science and art of medicine is that of a trustee, and a trustee is a person who takes something of value and preserves it for the benefit of others. Now this trusteeship of medicine began before the time of Christ. In the time of Hippocrates many of the old philosophers of that period were doctors. They probably didn't know so much science, but they did know their human natures, and human nature hasn't changed very much so far as anybody can prove. That defines to you something of the attitude of doctors towards the science and art of medicine.

Their attitude towards the public, then? Was it an attitude of monopoly? Not on your life. The attitude of doctors was, I should say, in a series of principles which cover a code of ethics. First, an obligation, not only that we owe the public—it was recognized in it that advancements had been made, already made, but that they were made in the interest of the public, not primarily in the interest of the doctor. For instance, there was a code of principles which prohibits doctors from obtaining patents on new procedures. When advancement in the science of medicine or art of medicine has been made, that becomes a part of the profession and that doctor owes that obligation. That obligation is assumed willingly. No doctor is ever paid anything for having made a startling advancement in the science or art of medicine.—*Shoulders, J. M. A. Georgia, Feb.* '47.

THE JOURNAL
of the
Medical Association of the State of Alabama

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March 1947

PHYSICIANS IN CIVILIAN PRACTICE DURING WAR URGED TO REPLY ON NEW QUESTIONNAIRE

Parallel with the advance of scientific warfare there has been a rapid advance in scientific medicine in the Twentieth Century. The huge strides made in our ability to destroy life and health in the recent war, however, have left many problems which remain to be solved. One of the most critical problems, as recognized by the House of Delegates of the American Medical Association in its December 1946 meeting, is that of providing care for the civilian population in the event of another national emergency.

The medical profession is wisely assuming its obligation to the American people to be prepared with facts and recommendations for any such future emergency. As a first step in this preparation, 5,000 questionnaires have gone out to a list of physicians, selected at random, who passed the recent war years in civilian practice.

On the basis of the answers to these questionnaires, sent out by the Committee on National Emergency Service of the American Medical Association, it is hoped that facts may be determined as to how the civilian population was served in World War II. The questionnaires also provide an opportunity for those who were responsible for civilian care in those years to indicate what changes should be made in the mobilization of medical service in future emergencies.

Five thousand questionnaries represent a very small percentage of the total number of physicians who remained in civilian practice. Dr. Edward L. Bortz, Philadelphia, Chairman of the Committee on National Emergency Service, has appealed to every physician receiving the civilian questionnaire to respond promptly. The accuracy of the facts obtained and the soundness of the conclusions made by the study will be determined to a great degree by the cooperation which those receiving the questionnaire give the committee.

The committee received excellent cooperation from the 50,616 former medical officers who were mailed questionnaires last December on their experience in military service. These are now being analyzed and studied. The facts obtained will be used as a basis for recommendations to be made by the committee in June to the House of Delegates.

With the cooperation of the 5,000 physicians who are now receiving questionnaires on their civilian experience, the committee will be able to complete the total study of how the medical profession can best serve our population, civilian and military, in the event of a future national emergency.

Every physician receiving one of these questionnaires has a professional and humanitarian duty to perform in completing it and returning it promptly. It is preferred that each sign his name, but, if anyone wishes to remain anonymous, he may do so. The important thing is to get as broad a representation of facts, experiences, and opinions as possible.

Anorectal Infections—It is now generally agreed that practically all perianal and perirectal infections begin at or near the anorectal line. Debris and infection are constantly being forced into the crypts, so that when some unusual trauma breaks down the natural barrier this infection usually obtains a foothold. The infection may begin in an intramuscular gland which empties into the crypts or in the crypt itself, but at any rate, this is the first phase of an infectious process. The picture which is usually seen at this stage of the process is a cryptitis and an accompanying papillitis—the birth of anorectal infection.—*McGivney, Texas State J. Med., Feb. '47.*

PROGRAM OF THE ANNUAL SESSION

THE CENTENNIAL MEETING

BIRMINGHAM

APRIL 14, 15, 16, 1947

THOMAS JEFFERSON HOTEL

GENERAL INFORMATION

All sessions of the Association will be in the Ballroom of the Thomas Jefferson Hotel, convention headquarters.

The maximum time consumed by essayists must not exceed fifteen minutes. This time limit, however, does not apply to invited guests. It is suggested that the salient features of papers be presented within this time, reserving the complete elaboration for publication in the Journal of the Association. Discussions will be limited to 4 minutes for each speaker.

All papers read before the Association must be deposited with the Secretary when read; otherwise, they will not be published.

During the discussion of papers, the speaker will please walk forward to the platform and announce his name and address distinctly.

Papers will be called in the order in which they appear on the program. Should the reader be absent when called, his paper will be passed, and called again when the program is concluded.

HOST TO THE ASSOCIATION

The Jefferson County Medical Society

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W. S. Littlejohn, *President*
Melson Barfield-Carter, *Vice-President*
W. E. Coleman, *Secretary-Treasurer*

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Lloyd Noland ..... Fairfield
J. D. Perdue ..... Mobile

State Health Officer

D. G. Gill ..... Montgomery

* * *

PROGRAM

First Day, Monday, April 14

Morning Session

The Ballroom
Thomas Jefferson Hotel

1. Call to Order at 10:00 A. M. by the President—
   Carl A. Grote, Huntsville.
2. Invocation—
3. Addresses of Welcome—
   Hon. Clarence M. Pinson, President, Jefferson County Board of Commissioners.
   W. S. Littlejohn, President, Jefferson County Medical Society.
4. Presentation of the President—
   B. W. McNease, Vice-President, Northwestern Division, Fayette.
5. Message of the President—
   Carl A. Grote, Huntsville.
6. Reports of the Vice-Presidents—
   (1) *E. L. Gibson, Enterprise.*
   (2) *B. W. McNease, Fayette.*
   (3) *J. Paul Jones, Camden.*
   (4) *B. W. NcNease, Fayette.*
7. Report of the Secretary-Treasurer—
   Douglas L. Cannon, Montgomery.
8. Report of the Committee of Publication—
   Douglas L. Cannon, Montgomery.
9. Reports of Standing Committees—
   (1) Public Relations—
   G. O. Segrest, Chairman.
   (2) Mental Hygiene—
   Frank A. Kay, Chairman.
   (3) Maternal and Infant Welfare—
   A. E. Thomas, Chairman.

(4) Cancer Control—
a. *J. P. Chapman, Chairman.*
b. *Mrs. Ray Meade, State Commander, Field Army, American Cancer Society.*

(5) Prevention of Blindness and Deafness—
B. B. Warwick, Chairman.

(6) Postgraduate Study—
Ralph McBurney, Chairman.

(7) Accidents and Industrial Hygiene—
H. Earle Conwell, Chairman.

(8) Archives and History—
M. Y. Dabney, Chairman.

(9) Physician-Druggist Relationships—
R. E. Cloud, Chairman.

(10) Postwar Planning Commission—
B. W. McNease, Chairman.

* * *

Afternoon Session

Monday, April 14

2:00 P. M.

The Ballroom
Thomas Jefferson Hotel

(The papers on this part of the program are to be given by some of the younger members of the Association, and are to be twenty minutes each. The papers will not be open for discussion.)

1. *Heart Disease in Alabama—*
OLIVER W. WELCH,
Fairfield.

2. *A Report of a Case of Arrhenoblastoma—*
J. A. CUNNINGHAM,
Birmingham.
ARTHUR F. TOOLE,
Talladega.

3. *Present Day Treatment of Putrid Lung Abscesses—*
CHAS. J. DONALD,
Birmingham.

4. *A Workable Concept for the Treatment of Toxic Thyroid—*
E. A. HENDERSON,
Opelika.

5. *Some Recent Developments in Spinal Anesthesia—*
With Special Reference to Saddle Block in Obstetrics—
JOHN K. TAGGART, JR.,
Jasper.

6. *Clinical Applications of Sex Hormones in Gynecology—*
HERBERT H. THOMAS,
Birmingham.

Evening Session

Monday, April 14

8:00 P. M.

The Ballroom
Thomas Jefferson Hotel

1. *A Review of 7000 Consecutive Acute Abdomens—*
C. N. CARRAWAY,
Birmingham.

2. *The Fallacy of the Conjoined Tendon; New Technique in the Repair of Inguinal Hernia —Slides and Motion Picture—*
STEPHEN A. ZIEMAN,
Mobile.

3. *Cancer Control in Alabama—*
JESSE P. CHAPMAN, Selma; introducing
ALLISON E. IMLER, Birmingham, whose subject is:
Care of the Cancer Patient.

4. *Care of Colostomy—Slides—*
J. G. VANCE,
Birmingham.

* * *

Tuesday, April 15

Morning Session

9:00 A. M.

The Ballroom
Thomas Jefferson Hotel

1. *The Part Played by the Physicians of Alabama in the Development of Public Health—*
W. K. SHARP, JR.,
Director, District No. 2,
U. S. Public Health Service,
Richmond, Va.

2. *The Importance of Follow-Up Roentgenograms in Pulmonary Disease—*
A. ALLEN GOOD,
Mayo Clinic,
Rochester, Minn.

3. *The Management of Hypertension, With Particular Reference to the Surgical Treatment—*
ALBERT WEINSTEIN and COBB PILCHER,
Nashville, Tenn.

4. The Jerome Cochran Lecture—
REGINALD FITZ,
Boston, Mass.

5. Announcement of Vacancies in the College of Counsellors.

* * *

Afternoon Session

Tuesday, April 15

2:00 P. M.

The Ballroom
Thomas Jefferson Hotel

1. *Reconstruction of Eyelids and Eyebrows—A Motion Picture—*
ALSTON CALLAHAN,
Professor of Ophthalmology,
Medical College of Alabama,
Birmingham.

2. *Total Colectomy for Ulcerative Colitis—Report of Cases—*
LON GROVE,
Atlanta, Ga.

3. *The Surgical Management of Gastric and Duodenal Ulcers—*
OSCAR T. CLAGETT,
Mayo Clinic,
Rochester, Minn.

4. *Present Day Trends in Anesthesiology—*
ALICE McNEAL,
Chief, Department of Anesthesiology,
Medical College of Alabama,
Birmingham.

* * *

Evening Session

Tuesday, April 15

7:00 P. M.

Thomas Jefferson Hotel

Alumni Banquet

University of Alabama School of Medicine

A. C. Ray, Presiding

1. *Biographic Sketches of Dr. Josiah Nott—*
EMMETT B. CARMICHAEL,
Birmingham.

2. Address—
ROY R. KRACKE,
Dean, Medical College of Alabama,
Birmingham.

3. Address—
HARRISON H. SHOULDERS,
President,
American Medical Association,
Nashville, Tenn.

* * *

Last Day, Wednesday, April 16

9:00 A. M.

The Ballroom
Thomas Jefferson Hotel

Business meeting of the Association sitting as the Board of Health of the State of Alabama.

(1) Report of the Board of Censors;

(2) Revision of the Rolls;

(3) Election and Installation of Officers.

Adjournment

PROGRAM
TWENTY-SECOND ANNUAL MEETING
OF THE
WOMAN'S AUXILIARY
TO
THE MEDICAL ASSOCIATION
OF THE
STATE OF ALABAMA

The Tutwiler Hotel, Birmingham
April 14-15-16

President

Mrs. George A. Denison ..... Birmingham

President-Elect

Mrs. Frank Jordan ..... Huntsville

Vice-Presidents

Mrs. G. G. Woodruff ..... Anniston
Mrs. A. M. Roan ..... Decatur
Mrs. J. O. Morgan ..... Gadsden
Mrs. G. M. Williamson ..... Bessemer

Recording and Corresponding Secretary

Mrs. R. E. Tyler ..... Birmingham

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Mrs. J. R. Chandler ..... Bessemer

Auditor

Mrs. G. J. Roscoe ..... Birmingham

Historian

Mrs. T. E. Dilworth ..... Huntsville

Finance Officer

Mrs. Dan Coyle ..... Birmingham

Program

Mrs. Roy R. Kracke ..... Birmingham

Advisory Committee

Dr. John Mac Bell ..... Mobile
Dr. Carl E. Grote ..... Huntsville
Dr. Ralph McBurney ..... Birmingham
Dr. Dan Coyle ..... Birmingham
Dr. W. R. Britton ..... Montgomery

Sunday, April 13

2 to 6 P. M.

Preconvention barbecue, complimenting visiting and local doctors and their wives. Bass fishing and boating. Given by Dr. and Mrs. Estes H. Hargis at their farm on Florida Short Route. Directions at registration desk, Tutwiler Hotel.

Monday, April 14

1:30 P. M.

Tutwiler Hotel

Annual Executive Board Meeting

Mrs. George A. Denison, *President*, Presiding

* * *

Monday, April 14

4 to 6 P. M.

Stockham Hall, Birmingham Southern College

The Woman's Auxiliary to the Jefferson County Medical Society will entertain doctors' wives at tea.

* * *

Tuesday, April 15

9:00 A. M.

Colonial Room, Tutwiler Hotel

Call to Order—Mrs. George A. Denison, President, Birmingham.

Invocation—Rev. John L. Slaughter, First Baptist Church, Birmingham.

Welcome Address—Mrs. Walter B. Rountree, Birmingham.

Response—Mrs. J. H. Baumhauer, Mobile.

Memorial Service—Mrs. E. M. Norton, Birmingham.

Address—Current Trends in Thinking—
Dr. James L. Brakefield, Birmingham.

Message—Miss Mary Crawford, Birmingham.

Reading of Minutes.

Annual Report of Officers:
- President-Elect—Mrs. Frank Jordan, Huntsville.
- First Vice-President—Mrs. Gerald G. Woodruff, Anniston.
- Second Vice-President—Mrs. A. M. Roan, Decatur.
- Third Vice-President—Mrs. J. O. Morgan, Gadsden.
- Fourth Vice-President—Mrs. G. W. Williamson, Bessemer.
- Recording and Corresponding Secretary—Mrs. R. E. Tyler, Birmingham.
- Treasurer—Mrs. J. R. Chandler, Bessemer.
- Historian—Mrs. T. E. Dilworth, Huntsville.
- Auditor—Mrs. G. J. Roscoe, Birmingham.
- Finance Officer—Mrs. Dan Coyle, Birmingham.
- President—Mrs. George A. Denison, Birmingham.

Annual Report of Standing Committees:
- Press and Publicity—Mrs. J. R. Horn, Bessemer.
- Public Relations—Mrs. Herman Frank, Gadsden.
- Program—Mrs. Roy R. Kracke, Birmingham.
- Hygeia—Mrs. M. E. Barrett, Decatur.
- Lettie Daffin Perdue Scholarship Fund—Mrs. E. S. Sledge, Mobile.
- Archives and Exhibits—Mrs. A. M. Roan, Decatur.
- Memorial—Mrs. E. M. Norton, Birmingham.
- Jane Todd Crawford Memorial Scholarship Fund—Mrs. L. E. Norton, Anniston.
- Bulletin—Mrs. W. E. Meneray, Gadsden.
- Legislative—Mrs. J. U. Reaves, Mobile.
- Revision—Mrs. Dewitt Faucett, Gadsden.
- Parliamentary Referee—Mrs. N. T. Davie, Anniston.

Annual Report of County Presidents:
- Calhoun—Mrs. Jerre Watson, Anniston.
- Etowah—Mrs. W. E. Meneray, Gadsden.
- Jefferson—Mrs. A. E. Casey, Birmingham.
  Mrs. Carl A. Harris, Bessemer.
- Madison—Mrs. H. T. Donovan, Huntsville.
- Mobile—Mrs. E. V. Partridge, Mobile.
- Morgan—Mrs. E. M. Chenault, Decatur.

Report of Courtesy Committee—Mrs. Estes H. Hargis, Birmingham.

Report of Credentials Committee—Mrs. E. P. McEniry, Bessemer.

New Business.

Report of Nominating Committee—Mrs. John Mac Bell, Mobile.

Election of Officers.

Installation of Officers—Mrs. E. V. Caldwell, Huntsville.

Announcements by New President.

Reading of Minutes.

Adjournment.

Tuesday, April 15

1:00 P. M.

Luncheon Meeting, Mountain Brook Country Club

Mrs. Albert E. Casey, Presiding

Invocation—Dr. Marvin A. Franklin, Highlands Methodist Church.

Greetings—Mrs. D. H. Sparks.

Response—Mrs. W. M. Salter, Anniston.

Address—The Greatest Thing in the World, John Temple Graves, III.

Introduction of Guests and Officers.

Committees—
- Hospitality—Chairman, Mrs. Gilbert Douglas. Co-Chairman, Mrs. R. Curtis Green.
- Registration—Chairman, Mrs. Dan Coyle. Co-Chairman, Mrs. Kellie Joseph.
- Transportation—Chairman, Mrs. John Love. Co-Chairman, Mrs. John Rose.

(Note—All doctors' wives are urgently requested to register at the Tutwiler Hotel desk for this luncheon.)

Drive and Garden Pilgrimage immediately following Luncheon.

* * *

Wednesday, April 16

10:00 A. M.

Executive Board Meeting
New President Presiding

MEDICAL COLLEGE OF ALABAMA

CLINICOPATHOLOGICAL CONFERENCE

Reported by
Roger D. Baker, M. D.
Professor of Pathology

Conducted by
James S. McLester, M. D.
Professor of Medicine

PRESENTATION OF CASE

Clinical abstract read by Dr. Howard L. Holley, Resident Physician: A 41-year-old white male was admitted to the hospital on four different occasions over a period of one year.

First admission: The patient was first admitted to the hospital with a chief complaint of swelling of the lower extremities of two months duration. His present illness began 6 years previously when he had an attack of precordial pain accompanied by visual disturbances and headaches. His family physician told him his blood pressure was 246 systolic and 165 diastolic. He was treated with large doses of vitamin A, with some subjective improvement. He had been treated also with digitalis and "shots to reduce the swelling" before admission. An exploratory laparotomy had been performed one year before admission because of discomfort in the right upper quadrant. His gallbladder had been "drained" and he had had complete relief for four weeks. He had been nervous for a long time. He had had loss of libido for the past 12 to 18 months. There had been no nocturia, hematuria, frequency, or dysuria.

The patient was a well-developed and well-nourished white male, lying quietly in bed. The temperature was 99.4 F., the pulse 86, respirations 24, and blood pressure 130 systolic and 90 diastolic. In the bases of the lungs there were fine rales. The heart was enlarged to the left with apex beat in the anterior axillary line. There was an occasional extrasystole but no murmurs. The edge of the liver was just above the umbilicus. No fluid wave was elicited. The genitalia and lower extremities were exceedingly edematous. The red blood cells numbered 4,150,000. The hemoglobin was 84%. The white blood cells numbered 7,150, with 68 segmenteds, 12 lymphocytes, 9 monocytes, 4 eosinophils, 7 stab forms. The color index was 1.02. Urinalysis: Specific gravity 1.017; albumin, a trace; sugar negative; rare red blood cell. The Fishberg concentration test gave specific gravities of: 1.010, 1.009, 1.005. The icteric index was 8 units (normal: 4 to 6). The prothrombin time was 1 minute, 28 seconds; while the control was 45 seconds. Cephalin flocculation test was 1 plus. The Kahn was negative. The nonprotein nitrogen was 35. The circulation time was 36 seconds from arm to tongue (normal: 16 seconds). A roentgenogram of the chest demonstrated general enlargement of the heart with diffuse density through the right lower lobe. An electrocardiogram showed all complexes low in the limb leads. QRS—2 and 3, "W" shaped. Left axis deviation. T wave in CF-2 low. The impression was definite evidence of myocardial disease. The patient was placed on a regimen of digitalis. His edema disappeared but his liver remained approximately the same size. He was discharged a week after admission.

Second admission: He was admitted five-and-one-half weeks later with edema of the extremities. The blood pressure was 140 systolic and 120 diastolic. The lungs were clear. The heart sounds were distant. The rhythm was regular. The liver was at the same level as on the previous admission. The border was smooth and tender. There were 5,900,000 red blood cells per cu. mm. and 115% hemoglobin. The white blood cells numbered 10,800, with 15% lymphocytes, 2% monocytes, 71% segmented forms, 7 immature forms, and 4 eosinophils. The urine had a specific gravity of 1.005 and albumin of 4 plus; otherwise it was negative. The Fishberg concentration test showed specific gravities of 1.012, 1.014, and 1.016. The nonprotein nitrogen was 38. The total serum proteins were 6.1 gms. for 100 cc., with an albumin-globulin ratio of 1.3 to 1. The phenolsulfonephthalein test was unsatisfactory. The cephalin flocculation test was negative. The urea nitrogen was 15.1. The

circulation time from arm to tongue was 56 seconds. The patient improved on digitalis and bed rest. He was discharged after two and one-half weeks.

Third admission: He was readmitted two weeks later. One week after he had left the hospital his edema had reappeared. The temperature was 100.4 F., the pulse 88, the respirations 28, and the blood pressure 128 systolic and 108 diastolic. The patient had moderate generalized anasarca, which was more severe in the dependent portions. The pupils were dilated. The heart was enlarged. Systolic murmurs were heard at both base and apex of heart. The liver was five fingerbreadths below the costal margin. The urine had a specific gravity of 1.010, albumin of 2 plus, and occasional red blood cells. The red blood cells numbered 5,480,000 and the hemoglobin was 86%. The white blood cells numbered 11,050 and there were 45% lymphocytes and 50% neutrophils. The nonprotein nitrogen was 40. The albumin-globulin ratio was 3.5 to 1.9. The circulation time from arm to tongue was 51 seconds. The blood smear indicated hypochromic anemia. The hematocrit was 55. The Fishberg concentration test gave specific gravities of 1.016, 1.020, and 1.012. The bromsulfalein test gave no retention in 30 minutes. The electrocardiogram was about the same as the original one. He was kept in bed and given digitalis and a low-salt diet. He improved and was discharged after three weeks, free of edema.

Final admission: Six months later he was brought to the emergency room complaining of severe precordial pain. He was in shock. His wife said that he had been complaining of pain over his heart and in his left leg for the past week. On the night of admission he had eaten a large supper and then had been seized with sudden severe pain over the left side of his chest which had made him cry out. He had become nauseated and vomited. On admission to the hospital he was in shock, slightly dyspneic, and vomiting. The blood pressure could not be measured. The pulse was rapid and thready. The skin was cold and clammy. He was perspiring profusely. An electrocardiogram taken on admission showed an abnormal tracing. He now had a left bundle branch block. This did not indicate recent myocardial infarction but suggested an active myocardial process. The patient died soon after he was admitted to the hospital.

CLINICAL DISCUSSION—DR. McLESTER

The clinical history that Dr. Holley has just given us tells first of an episode six years ago, and then of a subsequent illness which during the past year necessitated four admissions to the hospital. The story can be broken down into three parts each with the following

Salient Features

Six years ago
- Arterial hypertension
- Severe precordial pain
- Headache with visual disturbances

During the past year
- Three hospital admissions, always with
- Enlarged heart
- Enlarged liver
- Massive edema
- Pulmonary congestion
- Evidences of renal impairment
- Abnormal electrocardiogram
- Prompt relief after rest and digitalis

And a final admission with
- Severe precordial pain
- Profound shock
- Left bundle branch block
- Death

Additional facts warrant mention. There was an extensive hypertrophic arthritis of the spine, but this can be regarded as purely incidental. I am ignoring the operation done a year previously on the gallbladder because I am unable to connect this with the difficulties that brought the patient to his end. In the radiogram before you I am more impressed by the widening of the aortic shadow than I am by the size of the heart. Although the measurements do not greatly exceed the calculated normal, the heart is of an abnormal shape consistent with enlargement and I feel that we can accept the clinical impression of hypertrophy.

Three questions present themselves: First, what was the nature of this patient's evident heart disease, and was the myocardial failure of 1946 related to the episode of 1940? Second, what was the nature of the liver enlargement? And third, what was the catastrophe that on the fourth visit to the hospital wrote finis to this sequence of events?

In the effort to answer the first question

we are warranted in assuming from the evidence presented that this patient had arterial hypertension with cardiac hypertrophy and myocardial disease. Then, because of the massive edema and pulmonary changes, we can assume further that he had congestive heart failure. Did he have a rheumatic heart? I don't think so. There is nothing in the story to suggest rheumatism. Could it have been simply an arteriosclerotic heart? No, in spite of the wide aortic shadow he was too young for that. It is significant that his history tells of hypertension relatively early in life and this no doubt had a bearing on his subsequent troubles.

Student E. A. Dudley, Jr.: Could he have had hypertension secondary to glomerulonephritis?

Dr. McLester: No, I don't think we are warranted in assuming glomerulonephritis; but I shall speak of the kidneys again after we have disposed of the heart. It is tempting without further discussion to say that he had hypertensive heart disease, but we must consider other features of his illness also.

Student R. W. Wadeson, Jr.: Could he have had constrictive pericarditis?

Dr. McLester: I don't think so. True, he had the enlargement of the liver seen in this disease, but he did not have the engorgement of the veins of the neck or the relatively small heart. In addition, there was no pericardial friction rub.

I believe we should find a clue to the subsequent heart failure in the episode of 1940. The salient feature of this incident was precordial pain so severe that he remembered it six years later. It must have been pretty bad. It is significant, too, that the blood pressure which previously was extremely high fell to a relatively low level and remained there. It seems to me that we can easily put the whole story together and say that the first episode represented coronary thrombosis and that the resulting myocardial infarct so crippled the heart that gradually in the course of years it became unable to meet its obligations. This is not an uncommon sequence of events.

Why was the liver enlarged? Was it the congestion of heart failure alone? If so, why was tenderness not emphasized and why did this organ not decrease in size when, under the influence of rest and digitalis, the patient showed such graphic improvement? There must have been some additional factor.

Could he have had carcinoma of the liver? We can't offer the objection that he was too young, for, as you will recall, in a recent conference we saw a boy of fourteen years with primary carcinoma of this organ. The smoothness of the edge of the liver would speak somewhat against carcinoma. And too, we know that underlying all of this was a congested liver. The chances are that the hardness and great size of the liver are in some way related to the congestion. In previous conferences Dr. Baker has shown us necrosis with degeneration of the liver cells near the center of the lobule which resulted apparently from simple congestion. My inclination is to say that in this case such necrotic areas have formed during the long periods of congestive failure and that connective tissue has invaded the lobule, thus leading to a form of cirrhosis. I believe he had both congestion and cirrhosis of the liver, and that we are warranted in calling it cardiac cirrhosis. Dr. Burrett, how would you explain this man's illness?

Dr. John B. Burrett, Instructor in Medicine: I think he had hypertensive heart disease with episodes of myocardial infarction.

Dr. McLester: Will you go along with me on cirrhosis of cardiac origin?

Dr. Burrett: I think you can blame the whole condition on the heart.

Dr. McLester: What about the headaches and visual disturbances?

Student: Migraine.

Dr. McLester: Yes, the visual disturbances suggest the scotomata of migraine, and I think we can let it go at that.

Dr. McLester: What about this man's kidneys? There was some fixation of specific gravity in the Fishberg test, but this was not rigid, and the nonprotein nitrogen of the blood was consistently within normal limits. His kidneys were no doubt impaired by his arteriosclerosis, in truth arteriolosclerosis, as well as the congestion, but I do not believe that renal insufficiency played a part in his illness.

Student M. E. Vaughn: What about the left leg pain a week before final admission?

Dr. Holley: This was apparently due to the arthritis of the spine.

Dr. McLester: What killed this man? Witness the severe precordial pain and the

collapse that brought him to the hospital on his last visit. What caused this?

Student B. A. Elrod: Anoxemia of the myocardium.

Dr. McLester: Yes, I think you are right, but what precipitated this lack of oxygen, angina or coronary occlusion?

Dr. Burrett: I think an electrocardiogram is often of help and I have a hunch that between the first and last admissions he had a definite myocardial infarction. The electrocardiogram changes in comparison with the preceding one.

Dr. J. F. A. McManus, Assistant Professor of Pathology: Is there an electrocardiographic change in angina pectoris?

Dr. Burrett: Not of the conduction type such as bundle branch block. You would certainly not have a bundle branch block as the result of angina alone.

Dr. McLester: Could his evident arteriosclerosis have led to bundle branch block?

Dr. Burrett: In view of work done by Dr. Schlesinger my conception has changed regarding coronary heart disease. I am inclined to say that in order to explain a bundle branch block we must assume occlusion of a coronary artery.

Dr. McLester: I agree with you. On his last visit to the hospital he had coronary thrombosis. We can summarize the story, then, by saying that early in life this man developed essential vascular hypertension and that on two occasions he experienced thrombosis of a coronary artery. On the first occasion the accompanying infarct was so large as to result a few years later in congestive heart failure and this in turn resulted in structural damage to the liver; on the second occasion the effects of the thrombosis were so quickly fatal that, possibly, no recognizable infarct was produced.

CLINICAL DIAGNOSIS

Arteriosclerosis
Cardiac hypertrophy
Old myocardial infarct
Congestive heart failure
Chronic congestion of liver with cirrhosis
Renal congestion with impairment of function
Hypertrophic arthritis of spine
Final coronary thrombosis.

PATHOLOGICAL DISCUSSION—DR. BAKER

The postmortem studies give answers to the three questions put by Dr. McLester: What was the nature of the heart disease, what was the nature of the liver disease, and what was the nature of the final episode? Some of the answers are not entirely complete, but on the whole they are satisfying. Furthermore, our studies answer some of the other questions implied in the clinical discussion, and bring to light new features which did not have clinical counterparts.

The heart disease is a combination of the hypertensive and coronary forms. The hypertensive form probably developed first but coronary disease became increasingly significant and was more important in causing the congestive failure and death. The heart was much enlarged, due to both hypertrophy and dilatation. It weighed more than twice as much as normal. Hypertension was probably the chief cause of the great muscular hypertrophy; but the fibrotic myocardial infarcts may have played a part through the mechanism of hypertrophy of the unaffected muscle. The ventricular hypertrophy affected both sides of the heart; i.e., it was concentric, indicating that the increased demand on the heart had been present for a long time. The extreme cardiac dilatation likewise affected both sides of the heart indicating that the chronic cardiac failure was of long duration.

Externally at autopsy the chronic cardiac failure was not especially evident, as there was no edema. Moreover, internally there was only a minimal ascites and no hydrothorax, but in the organs the evidences of chronic failure were abundantly present, as the liver, spleen, mucosa of the stomach, kidneys and lungs indicated. Heart failure cells were numerous in the lungs.

Arteriosclerosis of the coronary arteries was extreme. Fig. 1 shows the right coronary artery, which was opened longitudinally. The scissors crunched upon the thick, sclerotic, calcified, brittle walls, and made false passages in places. Although the right coronary had thickened walls the lumen of the main trunk was increased rather than decreased in calibre. The walls were so rigid that spasm could have had little effect on the diameter of the vessel.

The coronaries were also examined by cutting them crosswise at 2 mm. intervals. Schlesinger's injection technique (Angina Pectoris, Coronary Failure and Acute Myo-

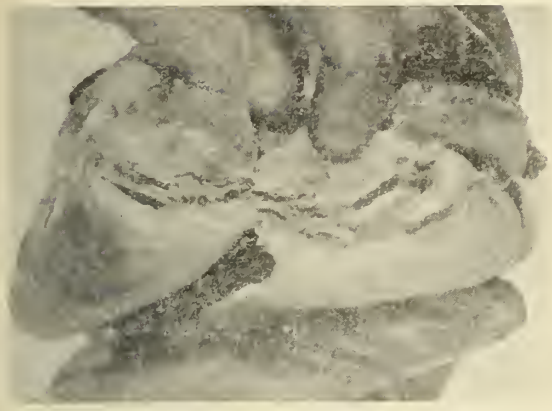


Fig. 1. Heart, showing right coronary artery opened longitudinally. Note the thick walls of the artery and the fragmentation in the middle segments. The latter is artifact caused by cutting open the brittle vessel.

cardial Infarction. The Role of Coronary Occlusions and Collateral Circulation. Blumgart, H. L.; Schlesinger, M. J., and Zoll, P. M., J. A. M. A. 116: 91-97, 1941) might have revealed additional occlusions.

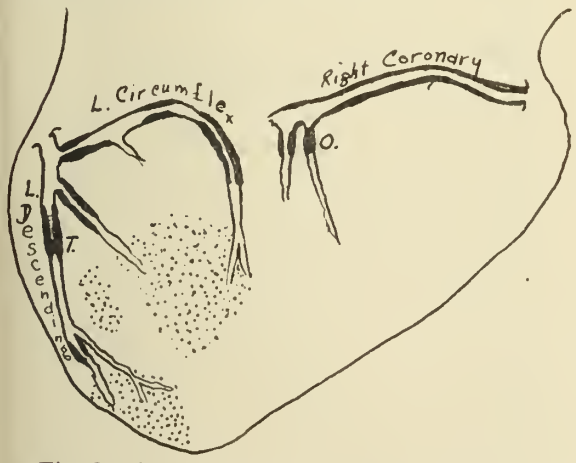


Fig. 2. Coronary arteriosclerosis and myocardial infarction. Indicated are the thickenings of the arteries, the stenoses, an old occlusion (O), a thrombus (T), and the fibrotic infarcts (stippled).

But with the usual methods stenoses and occlusions in the coronary circulation were demonstrated as indicated in Fig. 2. In a branch of the right coronary, at 0, there was a complete, old, fibrous occlusion, without any infarct in the muscle supplied by this vessel. Such an observation teaches that coronary occlusions may develop without producing infarcts.

The left coronary artery had several stenotic segments. These narrowings had led to the formation of infarcts apparently in the absence of occlusions. The infarcts were healed and fibrotic and the myocardium was decreased in thickness in these regions. Scarring was confined to the left ventricle and the septum.



Fig. 3. Heart, showing fibrotic myocardial infarcts, indicated by arrows. The heart weighs more than twice normal, and is dilated.

Numerous microscopic sections indicated no necrosis of the myocardium. In other words, there was no microscopic evidence of recent myocardial infarction. A thrombus, estimated microscopically to be several days old, was demonstrated in the descending branch of the left coronary artery at T. This had not produced demonstrable infarction. However, the age of the thrombus might well be correlated with the pain which the patient had experienced during the week before death.

Thus no coronary lesion was demonstrated which could be correlated with the final agonizing episode. A very fresh thrombus or a hemorrhage behind a plaque may have been overlooked. On the other hand, the final attack might have been due to sudden myocardial ischemia, perhaps caused by sudden dilatation of the heart.

Dr. McLester's second question concerned

the liver. What was the nature of the hepatic disease? It was largely chronic hepatic congestion and this accounted for the large size of the liver. It was one and one-half times heavier than normal. There was also a slight increase in the connective tissue framework of the liver, enough to make a diagnosis of minimal cirrhosis, possibly of the cardiac type. It seems to me that the clinical evidences of slight impairment of hepatic function were due more to the chronic congestion than to the minimal fibrosis.

The third question, the nature of the final episode, has already been answered in part. A satisfactory interpretation is not easy, but a combination of "coronary crisis" and failure of a dilated heart may be sufficient answer. Ischemia of a myocardial region, and thus a potential infarct, may have been present, but of insufficient duration to show itself microscopically; i.e., less than one day old.

Was there impairment of renal function? Clinically there was no renal insufficiency but there was mild impairment of function. This was due to the chronic passive congestion, for there were no conspicuous lesions in the kidney. The kidneys were considered to be those of essential or benign hypertension and there was mild arteriolosclerosis. Arteriolosclerosis was present in the pancreas and spleen as well.

Other features of the case need brief mention. Arteriosclerosis had produced an effect in the brain in the form of an area of old softening on the under surface of the right occipital lobe. The microscopic changes suggested that the lesion occurred several weeks or months before death, but not seven years before death. Perhaps the headaches and visual disturbances at that time were a part of the hypertension.

Arteriosclerosis of the aorta was moderate in degree and this vessel was not greatly dilated. I do not believe that it is wide enough to be correlated with what is interpreted as aortic shadow in the x-ray.

Disease of the gallbladder had been present, as indicated by scar tissue and cells of chronic inflammation in the wall.

Nothing additional was learned about the hypertrophic arthritis of the spine. The arthritis was thought to account for the pain in the leg, since no other cause was demonstrated.

A nodular benign prostatic hypertrophy was present, but obstruction to the urinary outflow had apparently not yet developed.

In attempting clinicopathological correlations, I believe the patient had had hypertension for some time previous to the onset of the present illness seven years before death. At that time he had symptoms of coronary disease. It is not clear when the infarcts were produced, but probably before the last year, and possibly seven years before death. The final year was one of congestive cardiac failure due to poor function of a scarred hypertensive heart.

I cannot help but wonder why this patient developed vascular disease so relatively early in life. He was only 42 years old when he died.

ANATOMICAL DIAGNOSIS

Coronary arteriosclerosis
Myocardial infarction of left ventricle
Coronary thrombus in descending branch of left coronary
Generalized arteriolosclerosis
Cardiac hypertrophy and dilatation
Chronic passive congestion of viscera
Minimal cirrhosis
Cerebral softening, right occipital lobe
Chronic cholecystitis
Benign prostatic hypertrophy

Dr. McLester: I want to emphasize one feature of this man's illness, the sclerosis described by Dr. Baker in some of the smallest arterioles, those of 100 micra or less in diameter, true arteriolosclerosis. I believe that in every case of essential hypertension that has existed long enough arteriolosclerosis involving the kidneys will be found. Isn't that true Dr. Baker?

Dr. Kahn: Didn't Fishberg publish a series of cases showing 100% of arteriolosclerosis in essential hypertension?

Dr. Baker: Every now and then there is a case of essential hypertension in which arteriolosclerosis is difficult to demonstrate, but usually it is found.

"Saddle block is a term used to designate a form of low spinal anesthesia confined to the perineal area. It differs from low spinal anesthesia induced in the ordinary methods in having a greater degree of controllability. Exact localization of anesthesia in the sacral segments with comparatively small doses of local anesthetic drugs may be obtained."

STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

D. G. Gill, M. D.
State Health Officer

AMERICA'S FIRST WOMAN PHYSICIAN

Although women physicians are still something of a rarity in Alabama—there are probably not more than eight or ten in the State at the present time—there are enough of them here and elsewhere to give them a recognized status in our social structure. About half a dozen have been employed at various times as Alabama county health officers, and others have been members of the staff of the State Department of Health, usually as specialists in obstetrics and pediatrics. In brief, in Alabama as elsewhere, the woman physician has definitely "arrived" and is accepted both by the general public and by her fellow-physicians.

That was far from true in the mid-1840's, however. And one woman, who had the best of reasons to know how untrue it was, was Elizabeth Blackwell, an English-born American school teacher who bravely decided to storm the forbidding citadel of medical education and practice. Thanks to her determination, she won through to success and has since received the distinction of being recognized as "the first woman physician of modern times."

Elizabeth Blackwell was born in the city of Bristol, and her birth date was February 3, 1821. Like other families of her day, hers was a large one, consisting of her parents and nine children, two of whom were older than herself. There is no doubt that the determined stubbornness which carried her through discouragement and temporary failure to the right to practice medicine was in large measure an inheritance from her father. Samuel Blackwell has been described as "an independent thinker of great courage, who could always be found on the side of the oppressed in any controversy involving matters of social or economic justice."

Elizabeth Blackwell was only 11 years of age when she came, with her family, to this country. Like so many other immigrants of their own and later times, they were content to end their transatlantic journey within sight and sound of the busy waterfront where they landed—that is to say, in New York City. After living there about six years, however, opportunity beckoned to them from the middle west, and they moved to Cincinnati. There, a few short months after their arrival, the transplanted Blackwells suffered the first major break in their ranks, when the courageous-minded father died. Like so many other men of high thinking, he had devoted little thought to financial matters and, as a result, his death left his large brood not only without any income to speak of but also virtually penniless. To make matters worse, her oldest brother was younger than herself, and the burden of keeping the wolf from the door devolved with crushing force upon Elizabeth and her two older sisters, the oldest only 21. Two ten-age girls and one only slightly older than that would have a pretty tough time of it trying to support themselves and seven other people even in our day, when job opportunities for young women are vastly more plentiful than they were then. But these courageous three tackled the problem by opening a school for young ladies. They made a fair financial success of it too and kept the others adequately clothed, fed and sheltered until the younger brothers were old enough to help. Then Elizabeth became a school teacher in Kentucky.

About this time—that is, in 1845—an event occurred which, seemingly without significance, changed Elizabeth Blackwell's entire life and launched her into the profession in which she was to become a female pioneer. She was paying a visit to a dying friend when the other person asked her why she did not study medicine.

Strangely enough, in view of the fact that Elizabeth Blackwell was to become internationally known as a physician, the very thought of such a thing repulsed her, and she flatly refused to consider the other woman's suggestion. But as she thought more and more about it and began to learn the difficulties she would encounter in entering such a life work, it began to take on a lure

for her. For Elizabeth Blackwell was like that. Give her an easy job to do, and she was not at all interested. But give her a tough assignment, full of near-impossibilities, and it challenged the combattive spirit that dominated her. So she decided to become a doctor.

It was not easy to save any substantial sum out of her school teacher's meagre salary, but she managed to put aside enough to make her feel safe in giving up her job and applying for admission to a medical school. And then she learned that her hoped-for medical career seemed doomed to end just there. For not a single institution in New York or Philadelphia, the country's medical centers at that time, would accept her. As someone put it, "she might as well lead a revolution as try to be a physician."

But, remember, Elizabeth Blackwell was a fighter. Being turned down by the country's leading medical schools was discouraging but not final, and she looked elsewhere, with the same result: Medical collages were not looking for, and did not want, women students. Finally, however, as a result of her inquiries, she received from a faculty member of the Geneva Medical College, in Geneva, N. Y., a copy of resolutions unanimously adopted by the entire medical class. They were in part as follows:

"Resolved: That one of the radical principles of a Republican Government is the universal education of both sexes; that to every branch of scientific education the door should be open equally to all; that the application of Elizabeth Blackwell to become a member of our class meets cur entire approbation; and in extending our unanimous invitation we pledge ourselves that no conduct of ours shall cause her to regret her attendance at this institution."

Her fellow-students lived up to their promise to give her a warm welcome and help her in every way they could. But being the only woman in a large class brought some embarrassing situations. One of them arose when the class was about to begin the study of anatomy. Fearing certain aspects of such a study might prove embarrassing, the professor wrote her a note suggesting that she absent herself from class during a few of the lectures. She replied with dignity that she did not agree with the professor but, on the contrary, thought that, "as a student with an earnest purpose," she should be accepted as such by the faculty and other students. The professor read her letter while she waited just outside the door and then threw it open. When she entered she received a noisy ovation, the class proceeded and from then on the question of her possible embarrassment was not raised.

She was graduated in 1849 with a determination to become a surgeon and, three months later, departed for Paris, where she fondly hoped to complete her medical education in one of the hospitals or clinics for which that city was famed the world around. But she quickly learned that the prejudice against medically-minded women was as strong in France as in the United States, and those famous places of healing turned her down. At last she had little choice but to enter the maternity hospital known as La Maternite, which provided training in midwifery. Here she made beds, scrubbed floors and performed other menial tasks. But she was obtaining valuable experience and did not mind.

This phase of her training was approaching its end when an accident made it necessary to change her plans. In some way, some of the water in a syringe which she was using to irrigate the eye of a baby suffering from purulent ophthalmia got into one of her own eyes. She developed the disease herself and became totally blind in that eye. Gone, then, was her fond dream of becoming a surgeon, the dream which had brought her to Paris and to this personal disaster. There was little left for her to do except to return to the United States, which she did in 1851. Here again she had to fight desperately for a chance to establish herself in her profession in the face of violent prejudice against women doctors.

About two years after her return, Dr. Blackwell organized her own dispensary in order to obtain experience, having found this to be necessary because of the just-mentioned prejudice against women in medicine. Still later—in 1857—she established a hospital of her own, which became known as the New York Infirmary for Women and Children, in order to provide badly needed hospital service but also, and more importantly, in order to provide an institution where other women doctors would be able to get what she had found it almost impossible to get—medical instruction along with practical experience. A few years later—in 1865—she founded a women's medical

college, which she operated as an auxiliary to the infirmary in order to provide women with medical college training, still unavailable to them at the nation's leading institutions. This college soon accumulated a notable list of "firsts." It became the first to be staffed entirely by women, the first to furnish the services of a "home visitor" to care for indigent patients in their own homes, and a "sanitary visitor" (a physician) to explain to poor mothers how to care for their own and their families' health. It was the first in this country to organize a school to train nurses, the first to set up a four-year course of study, and the first to require its students to be examined on their knowledge of medicine by a board entirely independent of its faculty. And finally the Women's Medical College was the first to establish a chair in hygiene.

For several years Dr. Blackwell operated her hospital, medical college and nursing school with the capable assistance of her sister, Emily, who in the meantime had received a medical education and degree at Western Reserve University, in Cleveland. Finding things going so well—too well for her penchant for tackling and whipping tough problems—she left Emily in complete charge in 1869 and returned to her native England, where, ten years before, she had been officially accredited by the British Medical Register, the first woman in all medical history to receive this honor. And there she spent the rest of her long and useful life and there she died on May 31, 1910, just a few months short of four-score and ten years of age. During the years between her return and her death she worked valiantly in the cause of medical education for women, personal and sex hygiene and home sanitation.

Dr. Blackwell's inspiring story is told in a leaflet issued by the Metropolitan Life Insurance Company, and it is from this source that the present speaker obtained much of the information for this article. The anonymous author of that leaflet had the following to say of her contribution to medical progress and medical education:

"As for her contribution to her profession, it must be remembered that Elizabeth Blackwell studied medicine when that great art was still crippled by the stationary theorizing of the 18th century. It was not until well after 1850 that the medical profession took up its bed and walked as a result of the great biological, physical and chemical discoveries of the second half of the century. Elizabeth Blackwell was no great scientist, but she had enough common sense to reject the medical heresies which flourished during her student days and to stick to the old established system, although in practice it dissatisfied her heartily. . . . Long before health education, preventive medicine, and the Child's Bill of Rights had even been heard of, Elizabeth Blackwell was teaching the rules of healthful living and writing of the weighty responsibility resting upon the medical profession 'to see that human beings are well born, well nourished and well educated.'"

BUREAU OF LABORATORIES

H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

NOVEMBER 1946

Examinations for diphtheria bacilli and Vincent's	339
Agglutination tests (typhoid, Brill's and undulant fever)	718
Typhoid cultures (blood, feces and urine)	718
Examinations for malaria	446
Examinations for intestinal parasites	1,850
Serologic tests for syphilis (blood and spinal fluid)	23,826
Darkfield examinations	37
Examinations for gonococci	3,445
Examinations for tubercle bacilli	1,573
Examinations for meningococci	0
Examinations for Negri bodies (microscopic)	93
Water examinations	1,157
Milk and dairy products examinations	2,771
Miscellaneous	536
Total	37,609

DECEMBER 1946

Examinations for diphtheria bacilli and Vincent's	396
Agglutination tests (typhoid, Brill's and undulant fever)	627
Typhoid cultures (blood, feces and urine)	509
Examinations for malaria	312
Examinations for intestinal parasites	1,452
Serologic tests for syphilis (blood and spinal fluid)	22,155
Darkfield examinations	27
Examinations for gonococci	2,952
Examinations for tubercle bacilli	1,658
Examinations for meningococci	3
Examinations for Negri bodies (microscopic)	95
Water examinations	1,148
Milk and dairy products examinations	2,363
Miscellaneous	382
Total	33,079

THE SURPLUS PLASMA PROGRAM

Surplus blood plasma held by the American Red Cross at the end of the War has been distributed to the various states to be used without cost to either doctor or patient. Four shipments have been made to Alabama, a total of 16,455 treatment units. The Bureau of Laboratories was made the distributing agent and has saved the State over $1,000 in freight and express bills, besides saving much time in the distribution. Accredited hospitals have received the majority of it and have acted as reservoirs from which smaller hospitals, clinics and private physicians could draw as needed. Allotments (in treatment units) have been as follows:

Hospitals	14,697
Branch Laboratories	902
County Health Departments	468
Red Cross Chapters	48
Total	16,115

Certificates of use have been returned for only 4,260 administrations during 1946. This would indicate that over 11,000 treatment units are still unused throughout the State; also, that comparatively little advantage is being taken of this gift. As a matter of probability, it is likely that twice the number reported has really been used. The filling out and prompt return of these certificates is little to ask when so much valuable data can be gathered from them. Of these 4,260 reports, 170 were without any diagnosis. Many diagnoses given were ambiguous or were not in standard medical terminology.

Only 1.6% received no benefit from the treatment, which included the 28 cases moribund on admission to hospital. Only one case is reported as developing a distinctly bad reaction to the plasma.

As a result of the first year's reports so far received, it is hoped that greater use will be made of so valuable an asset. Also, we earnestly request the following:

1. Prompt return of certificates of use.
2. Use of standard terms in diagnosis.
3. If no diagnosis is possible at the time of dosage, such should be stated.
4. More careful differentiation of "shock" —whether from surgery, hemorrhage, trauma, or burns.
5. As material becomes outdated it is to be discarded *at once* but need not be returned. A single certificate should be sent to the Bureau of Laboratories stating the amount discarded.

As a matter of interest a list is here given, in terms of 250 cc. units administered, of the diseases for which plasma was used. It is not absolutely accurate because of ambiguities in diagnosis and because many reports did not state the amount of the dosage.

Shock	3,156
From operation	1,587
From hemorrhage	603
From trauma	563
From burns	403
Hypoproteinemia	176
Preoperative preparation	102
Nephritides	63
Prematurity	60
Abortion	49
Toxemia	44
Anemia	41
Carcinoma	36
Malnutrition	36
Eclampsia	31
Appendix (ruptured)	27
Intestinal ulcer (ruptured)	27
Cirrhosis	27
Pellagra	23
Pneumonia	19
Hernia (strangulated)	19
"Cardiac condition"	17
"Liver damage"	16
Ectopic pregnancy	13
Gastritis	11
Hypertension	10
Pancreatitis (acute)	7
Asthenia	7
Cardiorenal	6
Uremia	6
Dermatitis (arsenical)	4
Edema	4
Diabetes	4
Meningitis	4
Cesarean section	4
Cholecystitis	4
Encephalitis	3
Peritonitis (tuberculous)	3
Typhoid fever	3
Spotted fever	3
"Booster"	3
Jaundice	3
Colitis	3
Liver abscess	3
Dermatitis (exfoliative)	2
Acute yellow atrophy	2
Enterocolitis	2
"G-I upset"	2
Pleurisy	2
Leukemia (myelogenous)	2
Brain tumor	2
Orchitis	2
Diphtheria	1
Brill's fever	1
Paratyphoid fever	1
Hemophilia	1
Hirschsprung's disease	1
Renal calculus	1
Ascites	1

Eczema	1
Poliomyelitis	1
Urticaria	1
Thrombocytopenia	1
"Poisoning"	1
Osteomyelitis	1
Insulin shock	1
Total diagnoses	4,107
Moribund	28
No diagnosis given	170
Bottles broken in transit	55
Total certificates returned	4,260

BUREAU OF PREVENTABLE DISEASES

CURRENT MORBIDITY STATISTICS

1946

	Nov.	Dec.	E. E.* Dec.
Typhoid	3	5	4
Typhus	33	20	41
Malaria	74	32	140
Smallpox	0	0	1
Measles	38	64	66
Scarlet fever	72	55	114
Whooping cough	38	167	92
Diphtheria	46	45	70
Influenza	151	242	713
Mumps	19	35	49
Poliomyelitis	9	5	4
Encephalitis	1	0	1
Chickenpox	61	90	134
Tetanus	2	3	2
Tuberculosis	297	257	218
Pellagra	2	4	10
Meningitis	3	3	14
Pneumonia	125	131	376
Syphilis	1613	1193	1347
Chancroid	42	25	12
Gonorrhea	819	562	436
Trachoma	0	0	0
Tularemia	1	1	1
Undulant fever	7	11	6
Dengue	0	0	0
Amebic dysentery	1	0	0
Cancer	326	205	0
Rabies—Human cases	1	0	0
Positive animal heads	41	40	0

As reported by physicians and including deaths not reported as cases.
*E. E.—The estimated expectancy represents the median incidence of the past nine years.

BUREAU OF SANITATION

Arthur N. Beck, M. S. in S. E., Director

COLBERT COUNTY MALARIA CONTROL PROGRAM

Contributed by
W. H. Kittrell

At the request of Colbert County officials, the Legislature of 1939 passed an Act calling for a state referendum on an amendment to the Constitution of Alabama to permit the Commissioners' Court of Colbert County to divide the county into drainage districts and to hold elections in such districts to decide whether or not to impose a three mill property tax, the revenue to be used for the control of malaria. The amendment received a favorable vote in the general election in November 1940. The Colbert County Court of Commissioners created a drainage district comprising roughly the northeastern one-third of the county. This district includes the areas where malaria of relatively high endemicity had occurred for many years, and, except for small isolated foci, is the only malarious portion of the county. In an election held in 1941, the qualified voters in this district favored the malaria control levy. The tax became effective October 1, 1941, and the first collection was made in October 1942. This tax will be collected for ten years, and is to be used solely for the control of malaria within the drainage district. The tax law also provides that the malaria control program financed by this tax is to be operated jointly by the County Commissioners and the Colbert County Health Department.

This progressive action by Colbert County was extremely gratifying to health workers because it represented the first example in the state of an organized county malaria control program.

Unfortunately, the war situation prevented the prompt commencement of the permanent malaria control measures which had been planned for this district. Studies which had been carried on by an engineer in Colbert County from 1937 to 1940 indicated that drainage of ponded water was the primary method of choice. It soon became impossible to procure the necessary equipment to carry out the work economically. It was decided to make no expenditures from the county malaria control revenues until such time as equipment and labor would be more readily available.

During the summer of 1946, DDT residual spray was applied to all occupied residences in the district. This was a part of the federal, state and local health department's cooperative malaria control program, and was carried out at no expense to the local government. Two treatments were made in approximately four months. This work was generally received with enthusiasm by the public on account of the marked reduction in malaria transmitting mosquitoes and household insect pests. Limitations of federal funds will not permit the inclusion of the district in the program during 1947, but residual spraying may be carried on by the district.

On October 1, 1946, the Colbert County

malaria control program first became operative. A superintendent, qualified to make the instrument surveys and direct drainage work, was employed by the county, together with the assistants necessary to make up a survey party. No drainage machinery has been acquired to date, but negotiations by the county officials are in process. In the meantime, preliminary surveys and arrangements are being made by the superintendent under the technical direction of engineers of the State Department of Health.

The nature of the terrain, and of the limesink ponds in the district, presents some very puzzling engineering problems, too numerous to give in detail here. Drainage of some of the ponds is not feasible. In other instances, a number of ponds can readily be drained into a lower depression, which cannot be drained economically. In some of the situations of the latter type, limited natural vertical drainage is at work in the deeper depressions, vertical drainage which might be improved artificially. Drainage schemes which would satisfy malaria control needs often have inherent in them the possibility of damage to property by increasing the temporary flood problem at some point. For this reason, every effort will be made to provide surface drainage to natural streams whenever this is feasible, using vertical drainage only as an adjunct to such systems, and in some single isolated ponds.

Even in cases where surface drainage is quite practicable, the best route is not always obvious. Since no close-interval contour maps are available, it is often necessary to get profiles of several possible routes. Large scale (1 inch = 400 feet) photographs of the entire drainage district have been procured from the Tennessee Valley Authority. These are proving extremely useful and time saving in making preliminary surveys and estimates. A nearly complete net of base levels has been run over the entire area, setting bench-marks at frequent and convenient points. By running a survey, with level only, over a desired route and by spotting, on the photographs, points where elevations are taken, profiles can be plotted, thus eliminating the necessity of horizontal survey with transit or otherwise.

Several of the major drainage jobs of high priority on account of their relatively high malaria significance are now complete insofar as preliminary planning is concerned. Drainage operations can be started as soon as the necessary equipment is available.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES, OCTOBER 1946 AND COMPARATIVE RATES FOR 1946, 1945, AND 1944

Births, Stillbirths, and Causes of Death	Number Registered—During OCTOBER, 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births, exclusive of stillbirths	7874	**	**	32.0	23.6	24.6
Stillbirths	221	**	**	27.3	26.5	31.6
Deaths, exclusive of stillbirths	1967	1127	840	8.0	8.4	8.4
Infant deaths:						
Under one year	230	122	108	29.2	46.7	42.9
Under one month	165	92	73	21.0	28.8	25.5
Typhoid and paratyphoid 1, 2					0.4	0.8
Epidemic cerebrospinal meningitis 6	1		1	0.4	0.4	1.6
Scarlet fever 8					0.4	0.4
Whooping cough 9	1	1		0.4	2.4	1.6
Diphtheria 10	4	3	1	1.6	6.9	5.3
Tuberculosis, all forms 13-22	78	28	50	31.7	36.6	44.0
Malaria 28	5		5	2.0	0.8	2.8
Syphilis 30	22	2	20	9.0	12.2	12.2
Influenza 33	11	6	5	4.5	5.7	3.7
Measles 35						
Poliomyelitis 36	3	2	1	1.2	0.8	0.4
Encephalitis 37					0.4	0.4
Typhus fever 39	3	2	1	1.2	1.6	1.6
Cancer, all forms 45-55	200	141	59	81.4	74.0	72.6
Diabetes mellitus 61	33	27	6	12.6	13.0	11.0
Pellagra 69	6	5	1	2.4	3.3	4.1
Alcoholism 77	2	1	1	0.8	0.8	1.2
Intracranial lesions 83	197	112	85	80.1	70.0	79.1
Diseases of the heart 90-95	433	278	155	176.2	187.6	159.9
Diseases of the arteries 96-99	20	13	7	8.1	13.4	11.4
Bronchitis 106	3	3		1.2	1.2	1.2
Pneumonia, all forms 107-109	81	38	43	33.0	33.8	39.2
Diarrhea and enteritis (under 2) 119	11	6	5	4.5	11.8	8.6
Diarrhea and enteritis (2 and over) 120	2	1	1	0.8	2.4	1.6
Appendicitis 121	5	2	3	2.0	4.1	6.9
Hernia, intestinal obstruction 122	7	5	2	2.8	7.3	5.7
Cirrhosis of the liver 124	10	6	4	4.1	3.7	4.1
Nephritis, all forms 130-132	132	69	63	53.7	60.6	60.0
Puerperal causes 140-150	15	5	10	18.5	33.5	35.2
Puerperal septicemia 140, 142a, 147	7	2	5	8.6	8.4	11.2
Suicide 163-164	20	17	3	8.1	6.9	4.1
Homicide 165-168	35	6	29	14.2	13.4	10.2
Accidental deaths (exclusive of motor vehicle) 169, 171-195	97	58	39	39.5	43.9	44.0
Motor vehicle 170	65	48	17	26.4	24.4	20.0
All other known causes	328	204	124	133.4	137.1	147.7
Ill-defined and unknown causes 199-200	137	38	99	55.7	47.2	61.2

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births; deaths from specified causes per 100,000 population; deaths from puerperal causes per 10,000 total births. All rates are based upon the October report of the years specified.

**Not available.

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BACKGROUND

OVER THREE DECADES OF CLINICAL EXPERIENCE

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THE FENESTRATION OPERATION FOR DEAFNESS

J. BROWN FARRIOR, M. D.

New Orleans

The Lempert fenestration operation is now almost ten years old. During its developmental period, this operation was subjected to severe analytical scrutiny by the most conservative otologists. It is now an accepted surgical procedure and is hailed as one of the great advances in the field of modern otology as well as of all other contemporary surgery. Lempert,[1, 2, 3, 4] Shambaugh,[5, 6, 7, 8] Spake,[9, 10] Greenfield,[11] Moorehead,[12] Campbell,[13, 14] Jones,[15] Smith[16, 17] and others[18] have now done this operation on hundreds of patients with otosclerosis. Most of these patients were formerly severely deaf and are now living normal lives with practicable, serviceable hearing.

Fenestration operations have been attempted now for nearly seventy years. When it was discovered that otosclerosis is a new osseous formation of the bony capsule of the labyrinth and that the deafness is due to suspension of hearing rather than to its actual destruction, the otologic surgeon set to work to circumvent this mechanical obstruction to passage of sound into the inner ear. Kessel in 1877 reported miraculous imme-

Read before the Association in annual session, Birmingham, April 16, 1946.

From the Department of Otolaryngology, Tulane University School of Medicine and the Section on Otology, Ochsner Clinic, New Orleans.

1. Lempert, J.: Endaural Fenestration of Horizontal Semicircular Canal; Indications, Technic, Observations as to Early and Late Postoperative Results, Laryngoscope 51: 330-362 (April) 1941.

2. Lempert, J.: Fenestra Nov-ovalis; New Oval Window for Improvement of Hearing in Cases, Arch. Otolaryng. 34: 880-912 (Nov.) 1941

3. Lempert, J.; Meltzer, P. E., and Specter, B.: Bone Repair Following Defects Made in Skull of Cats by Means of Different Instruments, Arch. Otolaryng. 36: 473-490 (Oct.) 1942.

4. Lempert, J.: Lempert Fenestra Nov-ovalis with Mobile Stopple; New Advance in Surgical Treatment for Clinical Otosclerosis Evolved as Result of Research Study of 1,000 Cases in Which Fenestration Has Been Performed During Last 7 years, Arch. Otolaryng. 41: 1-41 (Jan.) 1945.

5. Shambaugh, G. E., Jr.: Otosclerosis; Surgical Treatment, Wisconsin M. J. 40: 488-492 (June) 1941.

6. Shambaugh, G. E., Jr.: Results with Fenestration Operation After 3½ years, J. A. M. A. 119: 243-248 (May 16) 1942.

7. Shambaugh, G. E., Jr.: Modified Fenestration Technic; Analysis of Results in 141 Consecutive Operations, Arch. Otolaryng. 36: 23-46 (July) 1942.

8. Shambaugh, G. E., Jr.: The Fenestration Operation for Otosclerosis, J. A. M. A. 130: 999-1006 (April 13) 1946.

9. Spake, L. B.: Otosclerosis; Surgical Treatment, J. Kansas M. Soc. 42: 220-222 (May) 1941.

10. Spake, L. B.: To be published.

11. Greenfield, S. D.: An Evaluation of the Lempert Fenestra Nov-ovalis Operation in Treatment of Otosclerosis, Arch. Otolaryng. 43: 25-30 (Jan.) 1946.

12. Moorehead, R.: To be published.

13. Campbell, E. H.: Otosclerosis; Surgical Treatment, Dis. Eye, Ear, Nose & Throat, 1: 21-27 (Jan.) 1941.

14. Campbell, E. H.: Fenestration of Labyrinth; Report and Analysis of Operated Cases, Tr. Am. Otol. Soc. 32: 305-337, 1942.

15. Jones, M. F.: Surgical Treatment of Impaired Hearing; Results Obtained by Using Lempert Endaural Fenestration Technic, Tr. Am. Acad. Ophth. (1943) 48: 284-287 (March-April) 1944.

16. Smith, J. M.: Report of 85 Fenestration Operations, New York State J. Med. 44: 1771-1777 (Aug. 15) 1944.

17. Smith, J. M.: Fenestration Operation; 32 Cases, Arch. Otolaryng. 37: 174-182 (Feb.) 1943.

18. Sullivan, J. A.: Otosclerosis Surgery, Arch. Otolaryng. 37: 845-851 (June) 1943.

diate improvement in hearing after mobilizing the fixed stapes. Many surgeons tackled the problem; all reported immediate miraculous hearing improvement but subsequent disappointing return of profound deafness. Windows were made in every accessible position of the bony labyrinth of the inner ear and every conceivable material was implanted in these fenestra to maintain their patency but all closed. Deafness recurred. Holmgren, the dean of Scandinavian otology, was a singularly diligent investigator in this field. He contributed many refinements of technic and kept the investigation alive, but the French surgeon, Sourdille, was the first to report significant, maintained hearing improvement.

In 1937 I heard Sourdille[19] discuss his technic and present his results. He described a complex three or four-stage operation for making a window in the horizontal semicircular canal. He had operated upon 140 patients a total of 400 times. Approximately a year of surgical care was required for each patient but by this formidable procedure he was able to restore good hearing in 40 per cent of his patients. The ingenious Julius Lempert has made this fenestration operation practical.

The Lempert one-stage fenestration operation with the window in the surgical dome of the vestibule is now the classical surgical procedure for the treatment of deafness in otosclerosis. This operation, when done correctly in properly selected cases, will restore practical, serviceable hearing in 60 to 80 per cent of patients and improvement in hearing in an even larger percentage.

Otosclerosis is not a rare disease. Routine postmortem examinations of temporal bones by Guild[20] and others have revealed otosclerotic foci at some point on the osseous labyrinth of the inner ear in from 8 to 10 per cent of persons. Fortunately, this otosclerotic focus involves the oval window in only about one out of 7 cases. Applying these figures to our national census, we find that there are 10,100,000 people in the United States with otosclerosis. Of these, 1,500,000 are deaf. Seventy per cent of the patients of hard of hearing clinics are otosclerotic.

There is no known medical treatment which will arrest the formation of this infinitesimally small but crippling osteoma or which will produce the resolution of this otosclerotic focus.

DIAGNOSIS

The diagnosis of otosclerosis and the selection of patients for the fenestration operation is a daily problem for every otolaryngologist. The diagnosis is based upon the history and otologic examination.

The typical history in otosclerosis is one of gradual onset of deafness in adolescent or early adult life. Tinnitus aurium may be the earliest and frequently a most annoying symptom. Often there is a family history of deafness. The disease is usually bilateral. The patients often believe that they can hear best in noisy places—called paracusis willisiana. There is usually no history of otitis media.

Otologic examination will reveal essentially normal tympanic membranes. The eustachian tubes are normally patent. There is deafness for air-borne sound. Bone conduction is prolonged over air conduction and there is apparent prolongation of bone conduction sound over normal.

The diagnosis of otosclerosis with stapedial fixation can be confirmed only by histologic examination. To avoid the wrangle over the existence of such a lesion in the individual patient, many otologists have adopted the term "clinical otosclerosis." Owing to the high incidence of both otitis media and otosclerosis, the history of these two conditions is often present in the same person. The diagnosis of otosclerosis in such a patient is a problem to every otologist, when the patient exhibits retracted tympanic membranes or old healed perforations, and yet the conductive deafness is out of proportion to the changes in the tympanic membrane and middle ear; the diagnosis in these cases is clinical otosclerosis. Such patients respond to the fenestration operation.

Both Lempert and Shambaugh rely on the tuning fork test for the diagnosis of otosclerosis and the final selection of patients for the fenestration operation. The tuning forks for the speech frequencies are used in this preoperative testing. These are the forks C-2, C-3 and C-4 with 512, 1024, and 2048

19. Sourdille, M.: New Technique in the Surgical Treatment of Severe and Progressive Deafness from Otosclerosis, Bull. New York Acad. Med. 13: 673-691 (Dec.) 1937.

20. Guild, S. R.: Histologic Otosclerosis, Ann. Otol., Rhin. & Laryng. 53: 246-266 (June) 1944.

double vibrations per second. The magnesium fork is preferred to the usual steel fork because of its longer duration of vibration. This prolonged duration of vibration decreases the margin of error in testing. The factors of air and bone conduction should be determined for each individual fork. These factors will vary with each individual fork in each set of forks. The normal for my 512 fork is 120 seconds by air conduction and 60 seconds by bone conduction. (Table I.) The

TABLE I
TUNING FORK TESTS

	Normal AC/BC	Otosclerosis AC/BC
512 D. V.	120/60	40/70
1024 D. V.	90/45	40/50
2048 D. V.	40/20	30/25

In otosclerosis air conduction is shortened and there is relative prolongation of the duration of bone conduction. This table demonstrates the duration of air conduction (AC) and bone conduction (BC) in the normal and otosclerotic patient with the 512, 1024 and 2048 magnesium tuning fork when these forks have been struck a maximum blow.

normal for my 1024 fork is 90 seconds by air conduction and 45 seconds by bone conduction. The normal for my 2048 fork is 45 seconds by air conduction and 20 seconds by bone conduction. These normal factors should be determined for your tuning forks and it is desirable to have them engraved on the forks. If bone conduction is prolonged over this normal, air conduction is less than bone conduction and other findings are in accord, the diagnosis is otosclerosis.

Regardless of the audiometer test or any other test, for a patient to be a suitable candidate for the fenestration operation, he should have only slightly reduced or normal bone conduction for the 512, 1024 and 2048 forks. Audiometers may be inaccurate, bone conduction audiographs frequently are wrong but tuning forks are never deceiving.

AUDIOGRAMS

The audiogram, the most scientific method of recording hearing, is a definite adjunct in determining the indications for the fenestration operation. As with the tuning fork, the speech frequencies of 512, 1024 and 2048 are of prime importance in the diagnosis and treatment of otosclerosis. Any patient with hearing above the 30 decibel level in these frequencies has practical serviceable hearing for conducting the ordinary affairs of life. Anyone with hearing below the 30 decibel level in these frequencies is, for all practical purposes, deaf.

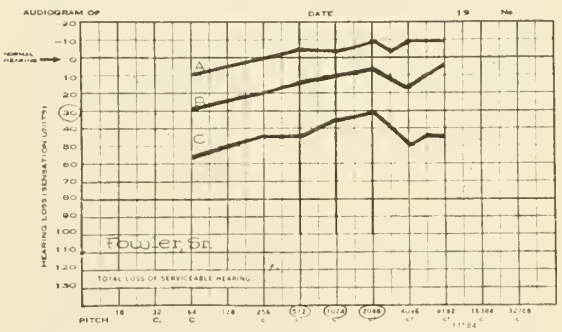


Fig. 1. Early otosclerosis. Audiogram showing hearing loss in the progressive stages of otosclerosis.[21] There is first a loss of low tones and subsequently a loss for the higher tone frequencies. The fenestration operation should ideally be performed early when the hearing is just below the 30 decibel level as in audiogram C.

In Figure 1 the audiograms A, B and C presented by Fowler[21] represent the hearing loss in early otosclerosis and the progress of otosclerosis. Otosclerosis begins as a purely conductive deafness and, for some as yet unknown reason, there is repression of cochlear function. No doubt, in the final stage, there is an associated nerve deafness. A successful fenestration operation is believed to stop loss of this cochlear reserve and there are recorded instances of the return of function of an already damaged cochlear. According to Fowler,[21] these audiograms A, B and C represent otosclerosis in childhood, adolescence and early adult life. In audiogram A there is beginning hearing loss of the lower tone frequencies. As yet there has been no cochlear damage and the hearing is normal for the upper tone frequencies. In audiogram B there has been further loss for the low tones and a beginning loss of cochlear function. In audiogram C, hearing loss has progressed to the level of deafness. In audiograms A, B and C we would expect normal bone conduction. If an audiogram D were added to this chart, it would show a marked loss of the high frequencies and of bone conduction indicating severe cochlear damage, an associated nerve deafness, the end stage of otosclerosis.

21. Fowler, E. P.: Early Diagnosis and Arrest of Otosclerosis, Arch. Otolaryng. 42: 253-256 (Oct.) 1945.

Figure 2 shows an audiogram of the right ear of an excellent candidate for the fenestration operation. There is retained hearing for the high frequencies by air conduction, and bone conduction is above the 15 decibel level in all of the speech frequencies. With a properly performed fenestration operation the possibility of restoration of serviceable hearing in this patient should be 70 to 80 per cent.

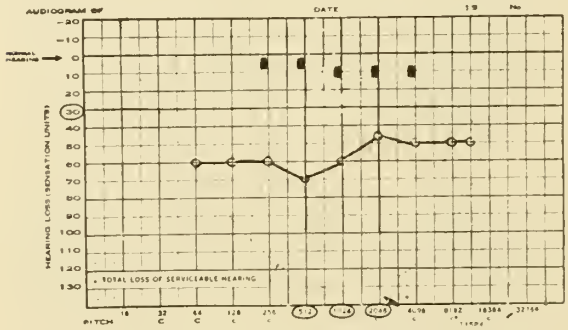


Fig. 2. This audiogram represents the ideal ear for the fenestration operation. The bone conduction is nearly normal for the frequencies 256, 512, 1024, 2048 and 4096. Hearing for speech frequencies 512, 1024, 2048 is well below the 30 decibel level of deafness. The air conduction audiogram is flat, with retained hearing for the higher tone frequencies, indicating minimal loss of cochlear reserve.

If the audiogram shows a pronounced loss for the higher tone frequencies, yet bone conduction for the speech frequencies has remained at the 30 decibel level, such a patient should have about a 60 per cent possibility for restoration of serviceable hearing with a properly performed fenestration operation.

If the audiogram demonstrates a pronounced loss for air conduction for the higher tone frequencies and the bone conduction for 2048 has dropped below the critical level of 30 decibels, the patient has a 50 per cent chance of restoration of hearing to near the critical level of 30 decibels. The advisability of the fenestration operation in such patients is questionable.

Any patients with the bone conduction for two of the critical frequencies below the 30 decibel level should be carefully examined with the tuning fork test and if all these tests confirm the findings of severe cochlear loss (Fig. 3), the patient would be advised to continue with the use of the hearing aid. Although such a patient may occasionally receive great benefit from the fenestration operation, the possibilities for success are so small that they are most wisely advised to continue using their hearing aid.

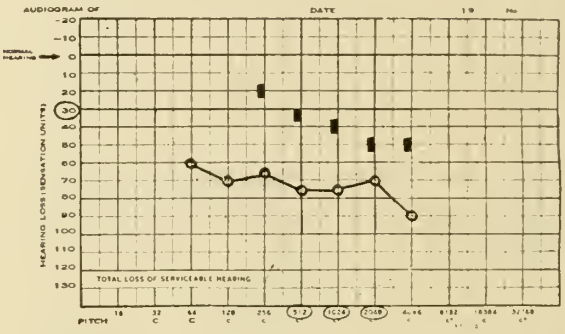


Fig. 3. Late otosclerosis. In late otosclerosis the fenestration operation will not usually restore serviceable or practical serviceable hearing. In this audiogram the bone conduction is below the 30 decibel level for two of the speech frequencies and there is severe loss of hearing for high tones.

TECHNIC

The fenestration operation is performed through a triangular incision in the external auditory canal. A simple mastoidectomy is then performed. The external wall of the attic is removed to expose the incus and the head of the malleus. The posterior wall of the bony canal is cut away and the incus and the head of the malleus are removed. A tympano-cutaneous flap is cut to cover the medial wall of the attic and, finally, a fistula is made in the ampulated end of the horizontal semicircular canal.

The construction of the fistula must be microscopically perfect. First, all periosteal bone is removed from the site. The enchondral bone is removed over a wide, flat area to expose the wide, blue ovoid of the endosteum of the surgical dome of the vestibule. The endosteal bone is pulverized and washed away. Finally the endosteum is removed so that the microscopically visible, translucent, membraneous labyrinth is exposed. The window, so made in a bloodless field, is covered with the thin membranocutaneous flap of the external auditory canal.

The Lempert fenestration operation has succeeded, when other operations have failed, because of:

(1) wide removal of the periosteal bone from the region of the fistula;

(2) scrupulous removal of all bony spicules and bone dust from the fistula and the flap;

(3) complete atraumatic removal of the endosteum;

(4) the inhibiting effect of the squamous epithelium on bone formation;

(5) the completely bloodless aseptic technic, and finally,

(6) the tendency for the membranous labyrinth to adhere to the medial surface of the flap.

COMPLICATIONS

With refinements in technic and the advent of penicillin and sulfadiazine the complications of the fenestration operation have been reduced to a minimum. With the fenestra nova-ovalis Lempert[4] reports bony closure of the fistula in only 7.2 per cent of cases. In his last hundred patients in whom there is a one year postoperative follow up, Shambaugh[8] had only 4 cases of closure of the fistula. Either because of sterile labyrinths or bony closure there remain 5 to 15 per cent of cases in which there is no practical improvement. Temporary facial paresis occurs in 5 per cent of cases but permanent paresis or paralysis is extremely rare. Persistent otorrhea occurs occasionally. All patients suffer from vertigo in the first postoperative weeks. This usually subsides before the end of the first month. Permanent vertigo has occurred in less than one per cent of cases. The operative risks from anesthesia and the danger from infection are less than one per cent.

The further prevention of bony closure and of sterile labyrinths is the research problem of today. The ultimate solution of these problems will result in an even greater percentage of good results.

POSTOPERATIVE CARE

Each one of you has been called upon to treat these patients postoperatively. The immediate postoperative care of these patients should always be in the hands of the operating surgeon. This consists of removing the pack on the fifth postoperative day, the application of 2 per cent aqueous gentian violet to the cavity and wound edges, and periodic aseptic dressing of the wound. In the third and fourth weeks or later granulation tissue may pile up, particularly on the superior surface of the cavity; it should be removed with a small Coakley curette and the base cauterized with silver nitrate. New epithelium should never be touched.

You will usually see these patients when the cavity is partially epithelized. The cavity should be kept clean by aspiration of the exudate. Granulation tissue should be removed. When the cavity is moist, boric or any other dusting powder may be insufflated. In a small percentage of cases there is persistent and sometimes foul discharge from the mastoid cavity. The most satisfactory dusting powder consists of four parts sulfanilamide, one part sulfathiazole and one part zinc peroxide.

RESULTS

The results of the fenestration operation vary with the skill of the surgeon, his care in selecting patients and his criteria for reporting results. In the treatment of deafness, the fenestration operation was once regarded as surgery of the last resort. Now we know that the fenestration operation is an operation of election in early or moderate otosclerosis and that the best results are obtained only when the inner ear has retained normal or nearly normal function. The earlier the operation is performed, the greater are the possibilities of restoration of practical serviceable hearing. Few surgeons will now attempt the fenestration operation when bone conduction has fallen below the critical level.

The level to which hearing is restored is the standard accepted method of reporting cases. The restored hearing may be good, fair or poor. With good hearing or practical serviceable hearing the patient is able to understand any conversation and attend movies, church, and the theater without auditory difficulty. Audiometrically, such hearing is at or above the 30 decibel level. With fair or serviceable hearing the patient should be able to understand normal conversations at distances of 3 to 5 feet and should be able to discard the hearing aid. Audiometrically, the hearing of these patients is about the 35 decibel level; this is gratifying to a profoundly deaf patient. If the hearing has not been restored to this level, the operation is a failure. Some surgeons have reported phenomenally high statistical results based upon the number of decibels of improvement. Although many of these are technical successes, if the hearing is not restored to the serviceable level, the patient remains deaf.

Statistically, the results of skilled surgeons vary from 65 to nearly 90 per cent of

patients with serviceable or practical serviceable hearing. In addition to the hearing improvement, a successful fenestration operation is reported to relieve the tinnitus aurium in from 60 to 90 per cent of cases.

At the time this article was submitted for publication I had performed 35 fenestration operations. Of the 30 patients who have passed through the immediate postoperative period, 80 per cent have obtained serviceable or practical serviceable hearing. Twenty patients acquired practical serviceable hearing at or above the 30 decibel level. Four additional patients received serviceable hearing. There were 6 failures, 5 of which were in the first 10 cases. Three failures were the result of improper selection of cases. One operation was unsuccessful because of a postoperative infection in the cavity. One patient was made worse by a postoperative sterile labyrinthine reaction, probably a hemorrhage into the labyrinth.

At this early date there has been only one postoperative closure of the fistula, an incidence of 4.1 per cent. As more time elapses, this incidence of bony closure may increase. If the incidence approaches or becomes higher than 10 per cent, it will not be the fault of the fenestration operation but some fault with my surgical technic.

It is interesting to note the progress in this series. Of the first 10 cases, 50 per cent received satisfactory results. Of the second 10 cases, 90 per cent obtained satisfactory results. In the last ten cases, 100 per cent have obtained serviceable or practical serviceable hearing. Only time can decide the final percentage of success.

SUMMARY

1. The history of the fenestration operation has been briefly reviewed.

2. The diagnosis of otosclerosis has been discussed and the criteria for the selection of patients for the fenestration operation have been defined.

3. The technic of the fenestration operation has been outlined and the reasons for success of the classical Lempert fenestration operation with the window in the ampulated end of the horizontal semicircular canal (the surgical dome of the vestibule) have been given.

4. The postoperative care, complications and results have been discussed.

ACUTE AND SUBACUTE YELLOW ATROPHY OF LIVER

REPORT OF THREE CASES WITH NECROPSY

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INTRODUCTION

Yellow atrophy of the liver is rare. However, it occurs in individuals of all ages. Women are affected more often than men. The etiology is unknown in a high percentage of cases. Its clinical manifestations are similar to certain infections or intoxications involving severe damage to the liver, with jaundice as a prominent symptom. Poisoning by many different chemicals produces changes in the liver which are identical with those of acute yellow atrophy of unknown etiology. It is an anatomic rather than a clinical entity. The term diffuse toxic necrosis would perhaps be a better one than acute yellow atrophy but, since the term is no longer taken literally, its use is generally accepted. The acute yellow atrophy of unknown etiology, as described in the cases in this series, may also be designated by such terms as genuine, primary, idiopathic and cryptogenic.

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HISTORICAL

The early history of acute yellow atrophy, as is true of many diseases, is difficult to evaluate due to lack of gross and histologic studies on fatal cases. Its first recognition dates back to the sixteenth century. The French physician Ballonius (1538-1618) gave the first authentic account of the disease entity now known as acute yellow atrophy of the liver.[1] In 1660, Franciseus Rubens ob-

1. Christian, H. A.: Acute Yellow Atrophy of Liver, Osler's Medicine, ed. 14, New York, D. Appleton-Century Co., p. 736, 1942.

served a case which may have been acute yellow atrophy. However, there was no postmortem examination performed and the diagnosis was based on the clinical findings.[2] This may have been the first case reported. Kerkring, in 1706, was the first to report a fatal case in a pregnant woman.[3] In 1760, Morgagni described a case, the clinical picture and pathologic findings being compatible with that of acute yellow atrophy. In 1821, Abercrombie recorded a case with necropsy under the name of "black ramolliement" of the liver which may have been a case of acute yellow atrophy.[2] Alison, in 1835, and Bright, in 1836, each reported two cases. The history of this disease, based on anatomic studies, began with Rokitonsky in 1842.[1, 2] Busk, the English physician, in 1846 is credited for the first demonstration by the aid of a microscope, of a destructive process in the hepatic cells.[2] The study of this disease entity on a scientific basis began with Rokitonsky and Busk. Therefore the cases reported before 1842 would have to be accepted with reservation since they were not confirmed by histologic studies. Zinker in 1872 demonstrated the presence of the mixed red and yellow lesions in atrophic livers of patients dying of this disease. Later, in 1895, Merchand demonstrated the presence of a regenerative reaction in the liver. To this healing process he applied the term "multiple nodular hyperplasia."

INCIDENCE

In 28,000 medical admissions to the Johns Hopkins Hospital over a 23-year period, the diagnosis was made only three times.[1] According to Best, only 500 cases had been recorded in the literature up to 1903. The majority of cases occur between the ages of 20 and 40 years. Rolleston collected 42 cases which occurred during the first ten years of life.[1] Over a seven-year period, 1938 to 1945, at the Nashville General Hospital, acute yellow atrophy was found three times in a total of 983 postmortem examinations. According to Bryce,[5] the frequency of idiopathic acute fatal hepatitis (acute yellow atrophy) is very low.

CASE REPORTS AND PATHOLOGICAL FINDINGS

This clinical and pathological study consists of two cases of acute and one of subacute yellow atrophy. There are a number of interesting features in these as to etiology. In none was the etiologic agent definitely determined. In one case two factors were present, both of which are known to be causative or associated agents in production of acute yellow atrophy (*Case* 1). In the second case there was one factor which is known to have produced it or to be associated with its production (*Case* 2). In the third case there was no etiologic agent or associated condition which is known to have produced this disease entity (*Case* 3). These cases are of interest because of the difficulty encountered in establishing a definite etiologic agent even though certain factors were present in two of the cases known to be associated with or responsible for its production, and are also of interest because of the rarity of the idiopathic form of this disease.

Case 1. F. H., a 20-year-old colored male admitted to the hospital on November 3, 1941. The chief complaint was bloody diarrhea and delirium. The bloody diarrhea had been present for two months and had been much worse during the past two or three days. On returning home the afternoon of his admission his mother found him irrational and delirious and brought him to the hospital immediately. The history as to the use of alcohol and other drugs was non-contributory. A diagnosis of primary syphilis was made on July 14, 1941. The blood Wassermann reaction at that time was positive. The urinalysis revealed a one plus albumin. He received his first injection of neoarsphenamine (0.3 grams) on July 25, 1941. During the month of August he received four injections of neoarsphenamine (0.45 grams) at weekly intervals. He failed to get his injection of neoarsphenamine on the fifteenth of August. On September fifth he received an injection of neoarsphenamine (4.45 grams) and again on October third he was given neoarsphenamine (0.45 grams). The total amount of arsenic given from July 25, 1941 to October 3, 1941 was 3 grams.

Physical Examination. The arterial blood pressure was 100/70, temperature 96°F., pulse 120 per minute, and respirations 20 per

2. Roman, B.: Acute Yellow Atrophy, Arch. Path. & Lab. Med. 4: 399 (Sept.) 1927.

3. Stander, H. J.: Acute Yellow Atrophy, William's Obstetrics, ed. 8, New York, D. Appleton-Century Co., p. 643, 1941.

4. McDonald, S.: Acute Yellow Atrophy in Syphilis, Brit. M. J. 1: 76 (Jan. 19) 1918.

5. Bryce, D. A.: Relative Frequency of Idiopathic and Toxic Fatal Hepatitis in United States, West Virginia M. J. 34: 76 (Feb.) 1938.

minute. He was a well developed and rather poorly nourished colored male, irrational and delirious, appearing acutely and critically ill. Icterus of the skin could not be demonstrated. There was icterus of the sclerae. The liver could not be palpated below the costal margin. There was generalized tenderness of the abdomen. The neurologic examination was not remarkable except for the mental state commented on in the history.

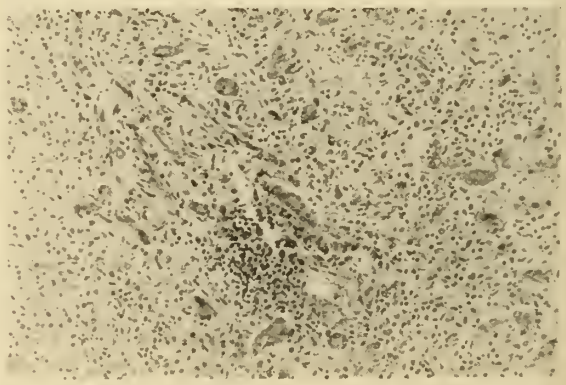
Initial Laboratory Studies: The leukocyte count was 61,200 per cubic millimeter of blood and the hemogram revealed polymorphonuclear leukocytes 88 per cent, lymphocytes 9 per cent, and basket cells 3 per cent. The icterus index was 40. The blood Wassermann and Kline were positive.

Clinical Course: The patient was admitted in a moribund and delirious state. The following day the pupils were small and did not react to light. This was thought to be the result of morphine he had received. He showed no response to therapy, his general condition grew worse and he expired in less than twenty-four hours after admission. On the day of death his temperature was 97°F. and the pulse rate was 120 per minute.

Treatment. The therapy was supportive and symptomatic and consisted of physiologic saline intravenously, morphine, coramine and atropine. The diet prescribed was a high carbohydrate and low fat combination.

Postmortem Examination (G-41-147). Gross Description. Liver: The weight of the liver was 810 grams. Its capsular surfaces were dark red in color and its edges sharp. Considerable blood could be scraped from the cut surfaces. Many dilated central veins were noted. The liver lobules were yellowish and more prominent than normal.

Microscopic Description. Sections from several areas showed that the liver was rather uniformly involved in an extensive necrotic process. In many of the lobules practically all of the liver cells had undergone necrosis, and such lobules appeared shrunken but still contained the vascular structures. In these areas there were fragments of liver cells, more or less completely lysed, and also inflammatory cells, chiefly monocytes and polymorphonuclear leukocytes. Many of the monocytes contained yellowish-brown pigment which probably represented lipochrome pigment derived from disintegrated liver cells. In some lobules liver cells persisted in the periphery. Many of these contained varying sized fat droplets, and bordering on them was an occasional liver cell with brick red cytoplasm, being the victim of coagulation necrosis. In some lobules the sinusoidal walls were ruptured, and red blood cells were diffusely scattered. In the portal areas, in addition to monocytes and a few polymorphonuclear leukocytes, there were quite a number of lymphocytes and plasma cells, but plasma cells were much more numerous just under the capsule of the liver. There was moderate but definite proliferation of bile ducts in the portal areas, but very little fibroblastic activity was noted. There was no endarteritis involving the hepatic arteries, but inflammatory cells were sometimes seen in the lumen of the small bile ducts. On the whole, there was remarkably little functionable liver parenchyma remaining (Fig. 1).



ACUTE YELLOW ATROPHY OF LIVER

Fig. 1. Photomicrograph of the liver showing an extensive necrotic process with fragments of liver cells remaining. Inflammatory cellular infiltration is present. There is moderate proliferation of bile ducts in portal areas. Hematoxylin-eosin X250.

General. There were several perforations in the lower portion of the esophagus and the walls of this portion tore very easily. The blood vessels of the lung were markedly engorged and the lung tissue in some areas was firmer than normal. The heart, brain, pituitary, adrenals and prostate revealed edema, congestion and parenchymatous degeneration. The kidneys and pancreas revealed edema and parenchymatous degeneration. There was congestion of the spleen, some areas of focal hemorrhage, polymorphonuclear leukocytes present in great

numbers, and in some areas they were present almost to the point of suppuration. The mucosa of the large intestines presented numerous ulcerations.

This young colored male had been in good health up to June 1941 at which time he developed primary syphilis. In the early part of September 1941 symptoms of a bloody diarrhea appeared for the first time. The onset of diarrhea was approximately six weeks after his first injection of arsenic for acute syphilis. By this time he had received a total of 2.55 grams of neoarsphenamine. His diarrhea persisted up to the first of November at which time it became more severe. He received only one injection of arsenic (October 3, 1941) following the onset of his diarrhea. The Wassermann reaction on the blood drawn just before death was strongly positive. On November the third he became critically ill and died within less than twenty-four hours. There was a non-specific ulcerative colitis which was responsible for his diarrhea. At necropsy no lesions of syphilis were found. During the two months preceding his death he received only 0.45 of a gram of neoarsphenamine, which was given thirty days prior to his death. In this case there are two factors present, both of which have been known to produce acute yellow atrophy. They are an infectious process (syphilis) and a chemical agent (arsenic). It would be difficult to say in this case which agent, if either one, was responsible for his acute hepatic necrosis. This case is a good example of the extreme difficulty which one encounters in establishing the causative agent in his disease.

Case 2. M. R. J., a 19-year-old colored female was admitted to the hospital on July 2, 1944. The chief complaint was nausea and vomiting of eight days duration. The episode of nausea and vomiting came on following the eating of fish. She consulted her physician but was not relieved. The following day she noticed some pustules appearing on her face, and also that her eyes were yellow. Following the onset of nausea and vomiting there was abdominal pain. Her appetite remained very good but she was unable to retain her food for more than two or three hours following meals. The urine became dark in color and two or three days before admission she noticed her stools were light in color. Swelling of her face and feet was observed by the patient two or three days preceding admission. There was no history of acute or chronic alcoholism. The drug history was non-contributory. She gave a history of the usual childhood diseases, and one normal full term pregnancy without complications. She had worked for one week at a hosiery mill about two weeks before the onset of her illness. The type of work was undetermined.

Physical Examination. The arterial blood pressure was 132/60, temperature 98°F., pulse 100 per minute, and respirations 16 per minute. She was well developed and nourished. She was drowsy and appeared depressed. The skin and sclerae were icteric. There was moderate edema of the lower eyelids. A systolic murmur was heard over the second and third intercostal spaces to the left of the sternum. The liver was not palpable. Moderate pitting edema of the lower extremities was present.

Initial Laboratory Studies. The leukocyte count was 6,850 per cubic millimeter. Hemoglobin was 12 grams. The non-protein nitrogen was 27 milligrams per cent. The blood Kline was positive and the Kolmer was negative. The icterus index was 95. Examination of the feces for bile was negative. The urine was negative for urobilinogen and positive for bilirubin.

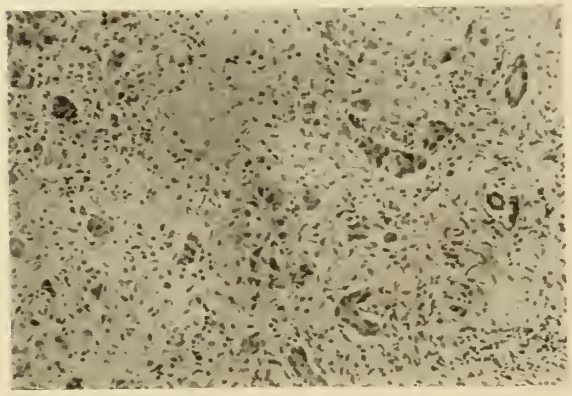
Clinical Course. On the second hospital day the drowsy and semicomatose state was still present. The stools were acholic and the urine was bright yellow in color. By the third day the semicomatose state was more noticeable. Lumbar puncture was done and revealed a pressure of 240 millimeters of spinal fluid. The fluid was xanthochromic. The cell count was 14 per cubic millimeter of fluid. The total proteins were 50 milligrams per cent. The Wassermann reaction was negative. The temperature at this time was 100.4°F. The icterus had become more pronounced and some moist rales could be heard at the lung bases. By the fourth day she had lapsed into deep coma. Moist rales were present throughout the lung fields, and blood-tinged mucus came from the upper respiratory passages (pulmonary edema). Some muscle twitchings were observed earlier in her illness and on the day of death she had two convulsions. Rhonchi were heard in the chest, heart sounds became feeble, pulse thready and rapid and she expired

on the fourth hospital day, the twelfth day of her disease. The temperature did not exceed 100.4°F. during her hospital course except on the day of death at which time it reached 104°F.

Treatment: The therapy consisted of intravenous infusions of 10 per cent glucose supplemented by vitamin K and vitamin B complex. The therapy otherwise was symptomatic and supportive. The diet was a high carbohydrate and low fat combination.

Postmortem Examination (G-44-41). Gross Description. Liver: The weight of the liver was 750 grams. It retained a normal shape, its surface was essentially smooth but had large, irregularly shaped, depressed areas which were brownish-red; whereas the other, relatively elevated, areas were light, dirty tan color. The consistency was much firmer than normal. The edges were rather sharp. On cut sections the hepatic tissue had a nutmeg pattern which was mottled brown and tan.

Microscopic Description. The connective tissue skeleton of the liver was fairly well preserved. The parenchyma had been largely destroyed by an extensive diffuse lesion. Most everywhere there was seen a background of connective tissue stroma which contained the vascular channels and an increased number of biliary channels which showed chronic inflammatory cellular infiltration. There was perhaps slight fibroblastic proliferation throughout the stroma. There were considerable proliferation of the bile ducts. Some of the epithelial cells forming these supernumerary bile ducts resembled young hepatic cells. The few remaining liver cells were most often found immediately beneath Glisson's capsule. These cells, instead of being arranged in normal cords, occurred in sheets and masses, which, if they occurred elsewhere, could be suggestive of tumor cell invasion. Active liver destruction was observed in adjacent areas as evidenced by pale blocks of hepatic cells with mere ghost-like outlines of nuclei. The endothelial cells lining the sinusoids were filled with blood pigment (Fig. 2).



ACUTE YELLOW ATROPHY OF LIVER

Fig. 2. Photomicrograph of the liver showing extensive necrosis of the liver cells. Inflammatory cellular infiltration is present. Hepatic cells with ghost-like outlines of nuclei are seen. Proliferation of bile ducts is present. Hemotoxylin-eosin X250.

General. There was some edema of the cardiac muscle. The kidneys revealed marked congestion, cloudy swelling and tubular degeneration. The blood vessels of the lungs were moderately congested, and scattered throughout the lungs there were areas of hemorrhagic bronchopneumonia. The splenic pulp was congested and hemorrhagic. The fundus of the uterus contained a small polypoid mass which proved to be partially hyalinized placental tissue, indicative of a recent abortion. This placental tissue was well localized and the period of gestation, estimated at 3 to 5 weeks, probably was terminated near the onset of the patient's illness. This disease, in association with pregnancy, has usually been observed during the second half of gestation or early in the puerperium. However, Beatty and Masson have observed cases as early as the sixth and eighth weeks of gestation.[3] As to what relation this very early gestation and subsequent abortion had to the hepatotoxic agent, if any, in this case remains undecided. Syphilis, not established in this case, was not regarded as an etiologic agent.

Case 3. W. C. S., a 36-year-old white male admitted to the hospital on October 3, 1941. The chief complaint was jaundice which had been present for three and one half weeks. His urine had been dark in color since onset of jaundice. The stools had been light in color up to one week before admission and there was no vomiting. His occupation was that of a truck driver. There was no history of acute or chronic alcoholism. His family contributed the information that he spent considerable time at the local drug store and took different kinds of medicine given him by the pharmacist in the form of drug sam-

ples. There was no previous history of gallbladder or liver disease.

Physical Examination. The arterial blood pressure was 124/80, temperature 100°F., pulse 80 per minute, and respirations 22 per minute. He was a well developed and poorly nourished white male in no apparent pain or discomfort. The skin was dry and icteric. There was icterus of the sclerae. The abdomen was distended. The liver could not be palpated satisfactorily because of abdominal distension.

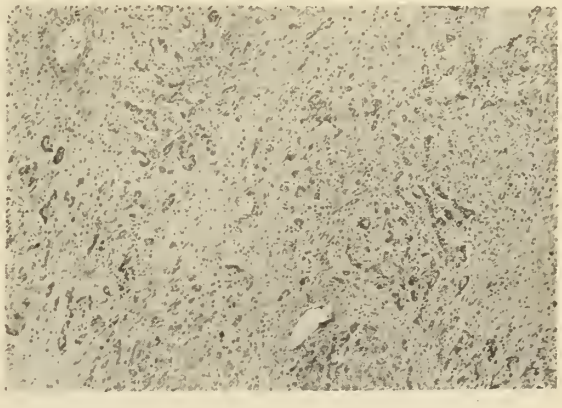
Initial Laboratory Studies. The leukocyte count was 9,000 per cubic millimeter. The hemoglobin was 10 grams. The icterus index was 155. The Van den Bergh (direct) reaction was positive. The non-protein nitrogen was 35 milligrams per cent. The microscopic urinalysis revealed an occasional pus cell and granular cast.

Clinical Course. The roentgenogram of the abdomen in recumbent position was non-contributory to the diagnosis. On the second hospital day the temperature was 102°F. The abdomen was still distended on the third day and a fluid wave could be demonstrated. At this time nausea and vomiting had developed. Wangansteen suction gave him relief for two or three days and then distension reappeared. At times there were muscular tremors and muscular tension was increased. On October ninth the icterus index was 200. At this time the urinalysis revealed a trace of albumin, occasional red blood cell, granular and cellular casts. At times he was irrational and responded poorly to any kind of stimuli. On the day of death he lapsed into deep coma from which he could not be aroused. The heart sounds became weak, pulse rapid and thready and he expired on the eighth hospital day. His temperature during his stay in the hospital ranged from 98° to 102°F. and on the day of death was 104°F. (rectal).

Treatment: The therapy consisted of 10 per cent intravenous glucose, blood transfusion and vitamin K. The treatment otherwise was symptomatic and supportive. The diet prescribed was high carbohydrate and low fat combination.

Postmortem Examination (G-41-144). Gross Description. Liver: The weight of the liver was 1500 grams. It was brownish-red in color, contained a few yellowish areas which gave it a mottled appearance. These yellowish areas were irregular in outline and appeared on cut surface as well as on external surface. The cut surfaces were intensely stained with bile. The larger bile ducts were distended with dark green bile.

Microscopic Description. Many of the lobules were quite small, irregular and poorly circumscribed. The lobules of liver tissue that persisted were separated by areas in which liver sinusoids persisted but immediately adjacent liver calls were necrotic and, in many instances, liver cells had undergone complete lysis, leaving only clear spaces to indicate their former position. In some of these areas there was beginning proliferation of fibrous connective tissue without many leukocytes in association. In other areas the necrotic liver cells in various stages of lysis were still apparent. In these areas there was usually extensive infiltration by polymorphonuclear leukocytes, beginning regeneration of liver cells, and extremely marked regeneration of the small bile ducts. Hyaline degeneration of the liver cells was not apparent in association with the lesion. The lesions were not confined entirely to the portal areas but appeared about the central vein in many areas as well. In some areas whole groups of lobules were involved. In such areas the sinusoids tended to persist, as did many of the liver cells in various stages of lysis. Scattered throughout were numerous small bile



SUBACUTE YELLOW ATROPHY OF LIVER

Fig. 3. Photomicrograph of the liver showing necrotic liver cells. In some areas complete lysis of liver cells leaving only clear spaces. Proliferation of fibrous connective tissue is present. Regeneration of liver cells is present in some areas. There is marked regeneration of small bile ducts. Hematoxylin-eosin X120.

canaliculi which were distended by brownish-green inspissated bile. Where larger bile ducts were apparent, no exudate was seen within these structures. Silver stains failed to reveal spirochetes or other organisms. The subacute stage was predominant (Fig. 3).

General. There was edema of the cardiac muscle. Sections from several areas of the pulmonary tissue revealed an early lobar pneumonia. There were three to four liters of ascitic fluid in the peritoneal cavity. The gallbladder was markedly distended and bile could not be expressed from the ampulla of Vater until the common duct had been dissected free. The splenic tissue was extremely soft and there was extensive hemorrhage throughout the splenic pulp. There were a few petechial hemorrhages in the mucosa of the stomach and the pelvis of the kidney. There was an acute ulcer in the duodenum about three centimeters from the ampulla of Vater. The kidneys were congested and the tubular epithelium was swollen.

This middle-aged white male with jaundice of three and one half weeks duration at the time of admission had developed signs and symptoms which indicated an increase in the severity of his disease. The course was rapidly progressive with signs of severe liver damage and failure resulting in death within eight days. There were none of the usual things elicited in this case known to be associated with, predisposing to, or causative of this disease.

ETIOLOGIC FACTORS

In reviewing the etiology of acute yellow atrophy the terms "predispose to" or "associated with" were commonly encountered. The following statement form William's Obstetrics[3] is of interest: "Nothing definite can be said concerning the causation, although several conditions are known to predispose toward the production of the disease." Quoting from Karsner:[6] "The typical cases are without identifiable cause." The presence of a specific toxin (hepatotoxin) circulating in the blood has been generally assumed to be concerned in the production of this disease.

Pregnancy. Acute yellow atrophy is a rare but a very serious complication of pregnancy. Practically every student of the disease has placed emphasis upon its association with pregnancy. Thierfelder collected 143 cases from the literature, 62 per cent having occurred in pregnant women.[3] The incidence of the disease in pregnancy has been placed at 60 per cent by Quincke.[3] Some of the case studies would indicate that this disease entity has an incidence of about one in every four to six thousand deliveries. It usually occurs during the last half of pregnancy or early in the puerperium. There have been cases reported as early as the sixth week of gestation.

Syphilis: The incidence of acute yellow atrophy as a complication of acute, untreated syphilis is small.[7]. Bright,[8] in 1836, first reported the occurrence of acute yellow atrophy in a case of syphilis. Fischer,[9] by 1908, had collected from the literature a total of 50 cases of acute yellow atrophy occurring in syphilis. Review of the literature up to 1944 revealed 59 cases of acute yellow atrophy of the liver in acute syphilis.[7] These cases were proved at necropsy and were not related to arsenical treatment. However, twelve of these cases had received mercury preparations preceding the onset of jaundice.

Arsenicals. Since the introduction of organic arsenic preparations in the treatment of syphilis the incidence of acute yellow atrophy in early syphilis has increased. Bortin,[10] by 1930, had collected from the literature 90 cases of acute yellow atrophy following arsphenamine therapy. McDonagh,[11] 1906 to 1918, observed nine cases of acute yellow atrophy in acute syphilis while they were being treated with arsphenamine. Schamberg[12] found neoarsphenamine to be

6. Karsner, H. T.: Acute Yellow Atrophy, Human Pathology, ed. 6, Philadelphia, Lippincott, p. 551, 1942.

7. Leonard, M. F.: Acute Yellow Atrophy of the Liver in Early Syphilis; a Case Report with Summary of the Literature, Am. J. M. Sc. 208: 461 (Oct.) 1944.

8. Bright, R.: Guy's Hosp. Rep. 1: 613, 1836.

9. Fischer, W.: Berl. Klin. Wchnschr. 45: 909, 1908.

10. Bortin, A.: Acute Yellow Atrophy Associated with Neoarsphenamine Injections, M. J. & Rec. 132: 288 (Sept. 3) 1930.

11. McDonagh, J. E. R.: Brit. M. J. 1: 189, 1918.

12. Schamberg, J. F.: Clinical Commentary on Studies of Histologic Changes in Organs Induced by Arsphenamine, by Neoarsphenamine and by Mercury, Arch. Dermat. and Syph. 3: 571 (Apr.) 1921.

less toxic than arsphenamine. There has been a case of acute yellow atrophy following mapharsen therapy reported by Zellermayer.[13]

Infectious Hepatitis. Cockayne,[14] 1912, called attention to the linking or association of infectious hepatitis with acute yellow atrophy. The conclusion reached at that time was that catarrhal jaundice and acute yellow atrophy are usually due to the same cause, the cause being a specific organism of unknown nature. Lucke'[15] states that most of the cases of idiopathic yellow atrophy have occurred during or shortly following an epidemic of catarrhal jaundice. Some investigators have entertained the view that yellow atrophy and benign catarrhal jaundice are but two extremes of the same disease entity.[14, 16] However, this view is not shared by all investigators.[15] Bergstrand[17] regards yellow atrophy as a complication of infectious hepatitis. The observations of Lucke'[15] support the view that idiopathic yellow atrophy represents the extreme lesion of infectious hepatitis.

Drugs and Chemical Agents. The production of varying degrees of liver damage by certain drugs, poisons and chemical agents (hepatotoxins) is well known. The use of various cyclic compounds in medicine and industry during recent years has been considered a contributing factor to the increased incidence of this disease. The following are some of the cyclic compounds: cinchophen, dinitrobenzine, diphenylchlorarsine, ortho-amidophenol, oxyliodide, paratoluylenediamine, picric acid, sulfonamides and trinitrotoluene. In addition to the cyclic compounds the following hepatotoxic agents may be mentioned: alcohol, arsenic, chloroform, mercury, mushroom poisoning, phosphorus, saponin, tartrate of antimony, tetrachlormethane and tetrachlorethane. Israels and Susman,[18] 1934, reported a case of subacute yellow atrophy in a young woman employed in a hair dressing establishment. The following year Peters and Sacks[19] reported a case of subacute yellow atrophy in a 61-year-old white female following use of hair dye. Kline,[20] 1938, and Russell,[21] 1940, each reported a case of acute yellow atrophy in patients receiving sulfanilamide. Rothstein and Cohn,[22] 1942, reported a case of toxic hepatitis in a patient following use of sulfathiazole. The above comments and listing of agents are sufficient to establish the drug chemical relationship to this disease without further elaboration.

Infections and Other Factors. The association of acute yellow atrophy of the liver with certain infections has been well established. Fraser,[23] 1916, reported a case of subacute yellow atrophy in a 6-year-old child who had had two previous attacks of pneumonia. Quoting from the article by Roxburgh,[24] Miller and Hayes refer to three cases of acute yellow atrophy following influenza. They also report a case in a 19-year-old girl following influenza who also had early syphilis and active pulmonary tuberculosis. Hayashi and Kibata,[25] 1932, reported spirochetes in the liver tissues of a case of acute yellow atrophy. There are other infections associated with this disease entity, such as typhoid fever, diphtheria,

13. Zellermayer, J.: Acute Yellow Atrophy in Syphilis, Ven. Dis. Inform. 21: 205 (July) 1940.

14. Cockayne, E. A.: Catarrhal Jaundice, Sporadic and Endemic, and Its Relation to Acute Yellow Atrophy of the Liver, Quart. J. M. 6: 1, 1912-13.

15. Lucke', B.: The Pathology of Fatal Epidemic Hepatitis; the Structure of the Liver After Recovery from Epidemic Hepatitis, Am. J. Path. 20: 471 (May) 1944.

16. Frohlick, C.: Ueber icterusepidemien, Deutsches Arch. f. klin. Med. 24: 394, 1879.

17. Bergstrand, H.: Uber die akute und chronische gelbe Leberatrophie, G. Thieme, Liepzig, 1930.

18. Israels, M. C. G., and Susman, W.: Systemic Poisoning by Phenylenediamine, with Report of Fatal Case, with Pathological Report, Lancet 1: 508 (Mar. 10) 1934.

19. Peters, H. R., and Sacks, M. S.: Systemic Poisoning Due to Synthetic Organic Hair Dye; Fatal Case with Autopsy, Ann. Int. Med. 12: 2032 (June) 1939.

20. Kline, E. W.: Acute Yellow Atrophy of Liver Following Sulfanilamide Medication, J. A. M. A. 111: 2384 (Dec. 24) 1938.

21. Russell, H. K.: Acute Toxic Necrosis of Liver Following Use of Sulfanilamide, Ann. Int. Med. 14: 168 (July) 1940.

22. Rothstein, I., and Cohn, S.: Acute Hemolytic Anemia, Autoagglutination, Toxic Hepatitis and Renal Damage Following Sulfathiazole; Case Report, Ann. Int. Med. 16: 153 (Jan.) 1942.

23. Fraser, A.: Subacute Yellow Atrophy, Am. J. M. Sc. 152: 202 (Aug.) 1916.

24. Roxburgh, A. C.: A Case of Acute Yellow Atrophy, Brit. M. J. 2: 430 (Oct. 19) 1918.

25. Hayashi, N., and Kibata, T.: Spirochetal Organisms in Tissues in Acute Yellow Atrophy of Liver, J. Infect. Dis. 30: 64 (Jan.) 1932.

septicemia and gastro-intestinal intoxications. It has occurred in association with other conditions, such as profound shock, mental emotion, cirrhosis of the liver and chronic passive congestion.

DISCUSSION

The onset is usually associated with malaise and mild gastro-intestinal complaints. Jaundice appears shortly after the onset of these indefinite symptoms. The jaundice, by most investigators, is considered to be of the toxic or infectious type. The appearance of the jaundice is the first definite sign; however, cases have been reported without jaundice. Weir and Comfort,[26] 1933, and Wilson and Goodpasture,[27] 1927, have reported cases of acute yellow atrophy without jaundice. Such cases have been reported by other investigators. The disease may remain in this phase (first stage) for a few days to two or three weeks. The symptoms and signs then become more marked, usually the change is rather sudden (second stage), and the seriousness of the disease is apparent. This change took place in *Case* 2 on the seventh day of the disease, and in *Case* 3 on the twenty-fourth day. The onset of the second stage in *Case* 1 was undetermined. As the disease progresses the jaundice deepens. The febrile reaction is variable, usually not elevated; however, it may be elevated terminally. In *Case* 1 the temperature was subnormal just before death and in the other two cases it was 104°F. terminally. There may be hemorrhages in the skin and mucous membranes; however, there was none observed in these three cases. The nervous and mental symptoms develop early in the second stage and become more marked as the disease progresses. The liver dullness decreases. According to Strathy and Gilchrist the cardiohepatic angle, as observed roentgenologically, becomes more acute as the atrophy progresses.[28] The spleen is usually enlarged. In *Case* 1 the spleen was not enlarged and was softer than normal. Areas of hemorrhage were noted. Congestion was present throughout. Polymorphonuclear leukocytes were present in great numbers in the splenic tissue, in some areas almost to the point of suppuration. There seems to be no clear explanation of this leukocytic reaction. As hepatic failure becomes well established the depression and lethargy gradually deepen into coma. Muscular tremors and convulsions are often present. They were observed in *Case* 2. In *Case* 1 the bloody diarrhea was due to the ulcerative colitis. The etiology of this lesion was not determined; however, submucosal hemorrhage, with secondary ulcerations due to prothrombin deficiency, would have to be considered. Since this case was receiving neoarsphenamine at the time of onset of diarrhea, this drug would have to be considered as a possible etiologic agent. Recurrent attacks of diarrhea in chronic arsenic poisoning are not infrequent. According to Sollmann, arsenic intoxication in acute cases produces congestion and superficial ulceration of the intestinal mucosa.[29]

The serum bilirubin is markedly increased. The serum amino acids are increased. The blood urea is decreased. The blood cholesterol is low. In the later and terminal stages there is hypoglycemia. The coagulation time is prolonged. There seems to be a wide variation in the leukocyte count in different cases. Roman[2] gives the count as varying between 2,000 and 15,000 per cubic millimeter. Lucke',[15] in his cases of fatal epidemic hepatitis, gives the leukocyte count as varying between 2,800 and 31,000 per cubic millimeter. The leukocyte count in the three cases reported in this article varied between 6,850 and 61,200 per cubic millimeter. The hemogram in the case with 61,200 revealed 88 per cent polymorphonuclear leukocytes. There were no premature forms observed. The cause of this extreme leukocytosis was undetermined. The relationship, if any, between this high count and the leukocytic reaction in the spleen remained undecided.

The urine is bile stained, scanty, and of high specific gravity. It often contains albumin and granular casts. The amino acids most commonly found are tyrosine and leucine. The urea nitrogen is decreased. The ammonia nitrogen content is increased.

26. Weir, J. F., and Comfort, M. W.: Toxic Cirrhosis Caused by Cinchophen, Arch. Int. Med. 52: 685 (Nov.) 1933.

27. Wilson, J. D., and Goodpasture, E. W.: Yellow Atrophy of Liver; Acute, Subacute and Healed, Arch. Int. Med. 40: 377 (Sept.) 1927.

28. Detweiler, H. K.: Diseases of the Liver, Cecil's Medicine, ed. 3, Philadelphia, Saunders, p. 803, 1935.

29. Howard, T.: Arsenic Poisoning, Tice's Medicine, VIII, Hagerstown, Prior, p. 83, 1940.

In acute cases the prognosis is usually hopeless once the clinical picture has developed. In most cases death occurs within a few days. In *Case* 1 the duration of the disease was undetermined; in *Case* 2 the duration of the disease was twelve days and death occurred within five days after the appearance of the clinical picture. The third case had a duration of six weeks and death followed within eight days after the appearance of the clinical picture. In subacute cases the outlook is not hopeless. Recovery depends upon the rate of the necrotic process and the rapidity of regeneration of the hepatic cells. Quoting from Pratt and Stengel,[30] Umber was first to produce definite proof of recovery from liver atrophy, and White found that up to 1908 there were 20 to 30 cases of recovery reported in literature. If the patient recovers there is usually sustained liver damage and impaired hepatic function. The end result may be the clinical picture of cirrhosis. Mallory has used the term toxic cirrhosis in describing this healed necrosis.

In the care of these patients the toxic agent should be removed. All individuals coming in contact with hepatotoxic agents should be safeguarded. The object of the therapy is to prevent the loss of glycogen storage and create conditions favorable to regeneration of liver cells. The use of parenteral glucose and a diet high in carbohydrate, small amount of protein and low in fat content has been advocated.

COMMENT

An attempt has been made to present two cases of acute and one of subacute yellow atrophy with a comment on the literature. A definite etiologic diagnosis could not be made in these cases. For that reason it would seem that acute yellow atrophy of indeterminate origin or idiopathic acute fatal hepatitis would be the preferred terminology in contradistinction to acute liver necroses of known etiology. The clinical, laboratory and pathologic findings are typical and need no further comment.

SUMMARY

Two cases of acute yellow atrophy and one case of subacute yellow atrophy of indeterminate origin, with photomicrographs of the liver and comments on the literature, are presented.

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Nonpigmented Moles—The person having a mole of any form which is subject to friction or irritation of any type is likely to become aware of changes in the condition of the process and call the attention of his doctor to it. Such irritations are brought about by rubbing of underclothing, suspenders, belts, garters, shoes, collars, combs, and brushes and by shaving and the cutting of hair by a barber or a hair dresser. At first the owner of the mole is aware of the friction because of tenderness and redness. To this there may be added infection and increase in size of the growth; and here is nature's warning, which is all too frequently somewhat ignored by patient and physician. From the abundance of readily accessible information the doctor at least ought to know that a mole is made up of cells which can develop into the dread melanoma and that the simple nonpigmented mole may be equally as dangerous as the brown mole. Those of us who handle many cases of this type are impressed that apparently a good many doctors do not realize the gravity of the situation, for they treat nevi lightly by simple excision to a level, by electric needles, by electrodesiccation, by chemical pastes, by roentgen ray or radium. No pathologist would contend that some nevi could not be destroyed by such simple methods, but the same pathologist would assert that the patient was lucky, for nevus cells frequently go rather deeply below the skin and superficial treatment would remove only part of the danger. In the light of repeated warnings over the past fifty years about the seriousness of this situation there is no excuse for such ignorance by physicians, but now and then I see patients lose their lives because some doctor paid no attention to this danger.—*Phillips, Texas State J. Med., March* '47.

CYSTIC AND CASEOUS TUBERCULOSIS OF MULTIPLE BONES

CASE REPORT

C. W. CARY MOORE, M. D.
and
LOUIS L. FRIEDMAN, M. D.
Birmingham, Alabama

The reported incidence of tuberculous lesions occurring in multiple bones is sufficiently uncommon to justify the addition of another proved case to the literature. Rosencrantz, Piscitelli and Bost,[1] in reviewing the case histories of 4252 tuberculous patients encountered in a general tuberculosis hospital during the fifteen years from 1920 to 1935, found that 160 or 3.76 per cent had single or multiple tuberculous bone and joint lesions. The infection is usually hematogenous in origin, and, according to Boyd,[2] the bovine type of microorganism is responsible for the infection in about 20 per cent of the cases. It is generally agreed that tuberculous bone and joint infection is usually secondary to some primary focus. In the analytical study reported by Rosencrantz, Piscitelli and Bost,[1] 73.9 percent of the patients suffering from tuberculosis of the bones and joints had clinical evidence of coexistent pulmonary disease, while in a series of cases studied by Birkelo and Jarzynka[3] over 85 per cent had healed or active pulmonary lesions. The incidence of demonstrable pulmonary foci of infection in tuberculosis of the bones and joints would probably be found to be more frequent than these reports indicate if better methods of detection were available. Furthermore, the degree of pulmonary involvement does not necessarily parallel the extent of the skeletal disease. Frequently, in the presence of rather extensive bone and joint involvement, only very minimal active or inactive lesions can be demonstrated in the lungs.

From the Department of Medicine, Medical College of Alabama.

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4. Paggi, L. C., and Hull, E.: Metastatic Granuloma Venereum; Report of Case, Ann. Int. Med. 1944, 20, 686.

CASE REPORT

The patient was a 22-year old colored male who entered Jefferson-Hillman Hospital on May 29, 1946.

Chief Complaint: Swelling of the abdomen, stiffness of the right hip, dysuria and watery bowel movements—all of about three years duration.

Present Illness: Prior to 1942 the patient had been in good health. In 1942 he had gonorrhea for which he was treated with some white pills and urethral injections with subsequent improvement. At that time he also developed bilateral fluctuant inguinal masses which suppurated and drained for an indefinite period of time before healing. In December 1943, he entered this hospital complaining of severe low back pain. At that time he was found to have scoliosis and lordosis, probably of tuberculous origin, but refused surgical treatment and left the hospital on January 11, 1944, unimproved.

In July 1944, the patient's abdomen began to swell. A paracentesis was performed by his local physician, and according to the patient "about a gallon of green fluid" was removed. Repeated aspirations for relief of abdominal discomfort were necessary until September of that year. He also reported frequent bouts of hemoptysis and epistaxis with his present illness, and, in addition, occasional chills and fever in the evenings, but no night sweats. Three weeks before admission the patient developed a dull aching pain in the region of the sternum which extended bilaterally at the level of the 2nd and 3rd anterior ribs. This pain was accentuated by deep respiration.

Three years before admission the patient noted slight stiffness and pain in his right hip. The symptoms progressed steadily un-



Fig. 1. Roentgenogram of spine and pelvis with enlargements of localized areas of rib destruction.

til the time of admission when he could no longer walk and was bedridden. In 1943 he began to experience difficulty in starting his urinary stream and dysuria on occasion. Three to four months before admission he began to experience burning on urination. Foul-smelling, watery bowel movements occurred with increasing frequency during this same period of time.

Past History: Non-contributory.

Family History: Non-contributory.

Physical Examination: Oral temperature was 97.2° F., the pulse 110, and respirations were 24. The blood pressure was 104 mm. Hg. systolic, 60 mm. Hg. diastolic.

Physical examination revealed a poorly developed, poorly nourished colored male with a markedly distended abdomen, who appeared to be chronically ill. Discrete supraclavicular lymph nodes were palpable bilaterally. A small epitrochlear lymph node was palpable on the right. Expansion of the lower part of the right hemithorax was definitely limited as compared to the left. Decreased tactile fremitus, dullness, and diminished breath sounds, whispered and spoken voice sounds were found at both lung bases posteriorly, especially on the



Fig. 2. Destructive tuberculous lesion in distal end of right humerus.

right. No rales were present. The heart was regular in rate and rhythm, and no murmurs were noted. The abdomen was markedly distended and a fluid wave was elicited. The right elbow was swollen, tender and painful on motion. A fluctuant, non-tender psoas abscess was present on the right. The remainder of the physical examination was negative or within normal limits.

Laboratory Data: Hemoglobin 8.7 gms. per cc.; red blood cell count was 3,500,000 per cu. mm.; white blood cell count was 8,450 per cu. mm.; differential count: segmented forms 87%, lymphocytes 6%, stabs 5%, and monocytes 2%. The urine was normal, and repeatedly negative for Bence-Jones protein. Blood calcium was 9.0 mgms. per 100 cc.; blood phosphorus was 6.6 mgms. per 100 cc.; and the total protein was 6.45 gms. per 100 cc. The albumin/globulin ratio was 1/1.3. A serologic test for syphilis was negative. Repeated sputum examinations by smear and culture were negative for acid-fast organisms. Agglutination tests were negative for paratyphoid A, paratyphoid B, typhoid O, typhoid H, proteus x19, and brucella abortus. Ascitic fluid aspirated on June 3, 1946 was clear and greenish yellow in appearance and had a specific gravity of 1.010. The protein content was 4.6 gms. per 100 cc. Bacteriologic examination of the fluid was negative for acid-fast organisms by smear and culture. Pus aspirated from the psoas abscess on June 4, 1946 revealed 4 acid-fast bacilli.

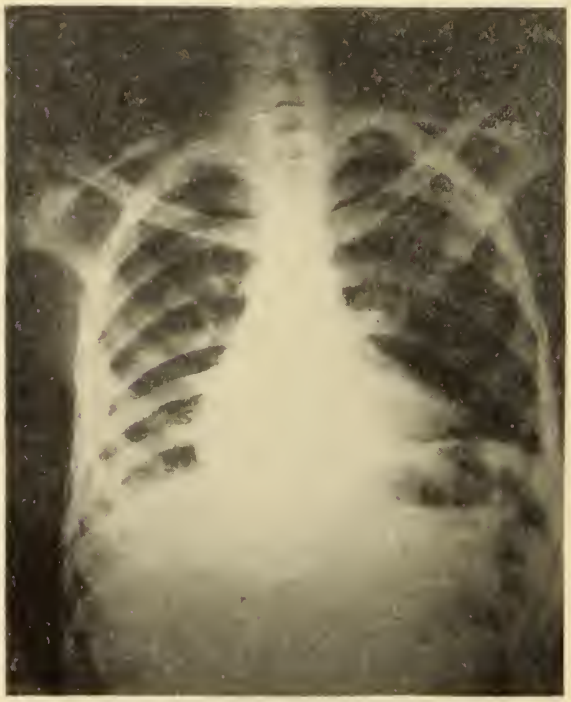






Fig. 3. X-ray of chest with spot enlargements of right and left scapular to show areas of destruction.

Bone Marrow: Examination of material obtained by sternal puncture and aspiration showed normal erythrocytes. The platelets appeared increased in number. There were 2 per cent plasma cells and in some areas they appeared in clumps.

Roentgenologic Examinations: Roentgenograms of the lumbosacral spine and pelvis

revealed multiple areas of bone destruction of the lower ribs and of the bones forming the pelvis (Fig. 1). Roentgenograms of the upper extremities were reported as negative except for a destructive lesion in distal end of right humerus in the region of the internal condyle (Fig. 2). X-ray of the chest revealed an old pleuritic process or atelectasis in the right lower lobe with elevation of the diaphragm and displacement of the mediastinum to this side. In addition to lesions previously detected in the ribs, multiple cystic areas of destruction were visualized in both scapulae (Fig. 3). Films of the skull were negative.

Biopsy Examination: Histopathologic examination of a section of the 8th anterior rib and cartilage on the left side obtained by biopsy revealed a typical picture of tuberculosis of the bone.

DISCUSSION

Although the general clinical picture in this case was immediately suggestive of tuberculosis, the multiple bone lesions necessitated the consideration of many other disease entities in the differential diagnosis. Syphilis of the bone, Gaucher's disease, multiple myeloma, eosinophilic granuloma, hyperparathyroidism, Ewing's sarcoma, Boeck's sarcoid, granuloma inguinale,[1] chronic osteomyelitis, and metastatic carcinoma were all considered and ruled out. Final unequivocal proof of the true nature of the disease was obtained only after the biopsy specimen was examined by the histopathologist and found to be consistent with tuberculosis.

SUMMARY

1. Another proved case of tuberculosis involving multiple bones has been added to the literature.

2. Although tuberculosis manifests itself very uncommonly in this fashion, it should always be considered in the differential diagnosis when multiple bony lesions involve the skeleton.

BAL—The medical profession is well acquainted with the advances that have been made in therapeusis in the past few years, notably in the management and treatment of infectious diseases. Very extensive researches are now under way or about to get under way to study the effect of antibiotics in the treatment of tuberculosis. It is rather unusual, however, to find that certain new and almost unheard of drugs have been employed in other disorders which are almost as magical in their effect as are the sulfa preparations, penicillin and streptomycin in the infectious diseases.

BAL is one of the new drugs that because of war secrecy has only recently been announced to the medical profession. BAL is an abbreviation for British Anti-Lewisite, a preparation which was developed as an antidote to arsenic blister gases. It was intended entirely for local decontamination but was found later to be extremely effective in the systemic treatment of severe arsenic poisoning. Arsenic poisoning might occur after hypothetical exposure to arsenical blister gases but the drug has been found to be of tremendous value in the treatment of the complications that result from arseno-therapy. It has also been found to have remarkably powerful protective and therapeutic value in the treatment of mercury poisoning.

The literature on BAL is very scanty but so important was it considered to put before the American medical profession the clinical uses of BAL (2, 3-dimercaptopropanol) that some fifteen articles were recently published as a supplement of the Journal of Pharmacy and Experimental Therapeutics, and in the Journal of Clinical Investigation for July practically the entire issue was devoted to experimental and clinical studies of BAL by those who were given the drug for special investigations.

The clinical reports of the use of this drug are almost unbelievable. Eighty per cent of patients with typical arsenical exfoliative dermatitis showed definite improvement within three days and were fully recovered in approximately two weeks. Of fifty-five patients with hemorrhagic encephalitis as a result of intensive arsenic treatment, forty of whom were apparently on the point of death, forty-four recovered within twenty-four hours to seven days. In the more severely poisoned patients BAL was administered parenterally. The compound has been used locally but for the most part intramuscular injection is the method of choice.

A group of twenty-three patients, after a study of the drug on the treatment of experimentally produced mercury poisoning in the animal, were given BAL after ingesting bichloride of mercury in doses sufficiently large to have resulted in death in the majority of them. Actually what took place was that only one patient died.

It was quite possible that BAL may be equally beneficial both in preventing and treating poisoning from other heavy metals. The drug should be made available and should be utilized by those who are treating large groups of patients or even an occasional patient who may have syphilis. Certainly it should be in the accident room of any hospital which may be called upon to treat a patient who has taken bichloride of mercury.—*Editorial, New Orleans M. & S. J., Feb.* '47.

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DISLOCATIONS

"Dislocations are many times more serious than fractures, but this fact is often overlooked by the busy general practitioner. For a joint to be dislocated, the ligament and the capsule must be torn and stretched. Articular surfaces are often injured and fractures frequently occur and may be complicated by periosteum and periarticular damage. Tension and stress are placed on nerves and blood vessels, aggravated many times by severe muscle spasm, which is Nature's means of immobilizing the injured part. In a dislocation rigidity is the keynote, while in a fracture increased motion or preternatural mobility is always present. Therefore, the first thing to ascertain when a dislocation is suspected is whether the extremity is rigid or flaccid."

The above is the opening paragraph of the brief but excellent paper presented by Callahan[1] before the Section on General Practice of Medicine at the San Francisco session of the American Medical Association.

The author goes on to tell us that "the steps to be observed in the treatment of all dislocations are as follows:

"1. The injured joint should be treated with the utmost gentleness in order to avoid additional injury to structures already in a pathologic state.

"2. The exact degree of function or dysfunction exhibited by the nerves and the blood vessels to and from the parts distal to the dislocation should be determined in order to help prevent and/or to treat possible future complications.

"3. Before any manipulation or postural treatment to effect a reduction is attempted, a roentgenogram of the involved joint should be secured in order to determine whether or not a concomitant fracture exists.

"4. A roentgenogram of the injured joint should be secured after reduction in order to determine whether or not a fracture is in a position to promote healing and a return to normal function.

"5. All attempts at reduction of dislocations should be made with the patient under general anesthesia. Local and nerve blocks have been used and have been successful, but only in isolated cases, and I recommend the use of general anesthesia which will effect complete relaxation of the muscles.

"The pathologic changes are stressed to acquaint general practitioners with the seriousness of dislocations. The importance of recognizing the difference between a fracture and a dislocation is emphasized."

Callahan then discusses in some detail the treatment of the more common dislocations, which cannot be considered here. And, in conclusion, he tells us that "I have tried to point out the pitfalls and dangers of various dislocations and their complications, but I cannot emphasize too strongly that all modern textbooks treat dislocations too lightly. As a matter of fact, I know of no fracture that will give the same amount of permanent disability as a dislocation. When one considers injuries of nerves, and blood vessels, periarticular adhesions, periosteal tears, injuries of ligaments, articular trauma, arthritis and all the other complications that occur following dislocations, one can readily understand that dislocations are one of the most important pathologic conditions encountered in the surgical treatment of bones and joints."

Callahan has been fortunate in the choice of his subject, for it is undoubtedly true that dislocations are regarded too lightly and, in general, do not receive the attention that

1. Callahan, James J.: Dislocations, J. A. M. A. 132: 440 (Oct. 26) 1946.

they deserve. Some of Callahan's remarks may border on the extreme, but he is certainly upon firm ground when he admonishes us to be more careful, thorough and gentle when dealing with dislocations. In times past a rather cavalier attitude was taken by many physicians toward dislocations and rough and violent indeed were the methods and means used in reducing them. And, to a considerable extent, this attitude still prevails, especially among the older men. While it may not be possible to carry out all of Callahan's admonitions in every case, the practitioners who encounter dislocations will certainly do well to heed his sound advice.

MEDICAL COLLEGE OF ALABAMA

CLINICOPATHOLOGICAL CONFERENCE

Reported by
Roger D. Baker, M. D.
Professor of Pathology

Conducted by
James S. McLester, M. D.
Professor of Medicine

PRESENTATION OF CASE

Clinical abstract read by Dr. Stanley S. Kahn, Resident Physician:

A 42-year-old white male was admitted to the private medical service late in the evening of December 28, 1946, with the chief complaints of aching pains in the joints and fever of 5 days' duration; and melena, skin eruptions and hematemesis of one day's duration.

Ten days before admission he consulted a physician in his town because of sore throat and was given one of the sulfonamide drugs. He took 2 tablets per dose for 8 doses (16 tablets) over a period of 2 days, and developed nausea. He discontinued taking the drug because his throat improved.

Five days before admission he began to have fever and aching pains in his joints and felt as if he had the "flu." Although he took no more medicine he was improved and worked on Christmas Day. On December 26th he again had fever, and his physician again prescribed sulfonamides. Thirty minutes after the first dose he vomited, and 20 minutes after the second dose he again vomited. He continued to vomit during the evening of the 26th and on the day of the 27th. but he kept on taking the tablets throughout the 27th. A mild skin eruption of the face appeared on December 26th, and this became a generalized rash on the 27th. He developed diarrhea on the 26th and bloody stools on the 27th, as well as hematemesis on the 27th. He had no urinary symptoms.

The past history indicated that, one year before admission, he had suffered with a skin eruption which was treated by a local physician with sulfonamides. Following this he had nausea and vomiting. He had suffered a traumatic amputation of his left hand several years ago. There was no history of allergy, asthma or sensitivity to food. No history of exposure to rabbits. There was no history of allergy in his family.

The temperature was 102°F., the pulse 140, the respirations 38. The blood pressure was 130 systolic and 90 diastolic. The patient was a well-developed, well-nourished, white male whose entire body was covered with a papular eruption. He appeared acutely ill. The eruption was confluent in places, with crusting on the thighs. There was an old traumatic amputation of the lower third of the left forearm. The submaxillary lymph nodes were bilaterally palpable and tender. No other nodes were felt. The conjunctivae were injected. The eyelids tended to stick together because of purulent exudate. The pupils reacted to light and in accommodation. The mucous membranes of the throat were injected. A white patch was noted on each tonsil. The chest was clear to percussion and auscultation. No rales were heard. The heart rate was rapid and the rhythm regular. No enlargement was noted. No murmurs were heard. No palpable masses, tenderness, distention or scars were noted in the abdomen. Tenderness was elicited in the right costovertebral angle. The genitalia appeared normal. A rectal examination was not made. There was no peripheral edema. The reflexes were physiological. The patient was conscious on admission.

On December 28, 1946 the red blood cells numbered 4,700,000 per cu. mm. of blood and there were 14.5 grams of hemoglobin per 100 ml. of blood (94% of normal). There were 40,000 white blood cells per cu. mm. of blood. Of these, 92% were neutrophils and 8% were lymphocytes. The 92% of neutrophils were further divided into 70% of segmented forms and 22% of stab forms. On December 31, 1946 the red blood cells numbered 3,710,000 per cu. mm. of blood and there were 11.5 grams of hemoglobin per 100 ml. of blood (75% of normal). There were 12,000 white blood cells per cu. mm. of blood. Of these, 94% were neutrophils, 4% were lymphocytes, 1% were monocytes and 1% were plasma cells. The 94% of neutrophils were further divided into 77% of mature, segmented forms and 17% of immature, stab forms.

On December 31, 1946 there were 208 mg. of nonprotein nitrogen per 100 ml. of blood and 7.3 mg. of creatinine per 100 ml. of blood. Agglutinations for paratyphoid B and typhoid H were positive in dilutions of one to twenty. Agglutinations for paratyphoid A, typhoid O, B. abortus and Proteus X19 were negative.

The patient was treated with penicillin, 40,000 units initially and 20,000 units every 4 hours, throughout the hospital course, with a total of 820,000 units. He was also given daily glucose infusions, oxygen and supportive measures.

On the day following admission he began to be irrational. His abdomen became distended and his skin eruption more pronounced. Dyspnea developed and he was placed in an oxygen tent. He had several severe shaking chills followed by temperatures (rectal) of 104 and 105°. He voided a small amount of urine on one occasion only, December 30th. A chest film (portable) was taken on December 29th. He became extremely restless on December 31st and at 6:00 P. M. developed a series of severe generalized clonic convulsions followed by cyanosis, and expired.

CLINICAL DISCUSSION—DR. McLESTER

This case presents the following

Salient Features

Brief, stormy illness
Sore throat with lymphadenitis
Pains in joints
Fever
Hematemesis, melena
Diarrhea
Anuria
Maculopapular eruption
Sulfonamide therapy
Convulsions—death

Laboratory Data

No urine
Drop of one million red cells in three days
Leucocytosis
N. P. N. 208, creatinine 7.3
Positive typhoid agglutination

The patient's illness started with fever, sore throat and lymphadenitis. It is possible that he had a streptococcic sore throat; like so many patients with this type of infection he also had pains in the joints. After this we encounter things that are not so easy to explain. His kidneys abruptly ceased to function. Then came an extensive maculopapular eruption. The number of red blood cells dropped one million in three days. At first there were 40,000 leucocytes and later 12,000. Toward the end his blood had an enormous nonprotein nitrogen content with the ominous creatinine figure of 7.3 mg. per cent; finally came convulsions and death. Throughout the entire history, going back a year, runs the story of sulphonamide medication, first in small doses and later in larger amounts. What significance can be attached to this? The answer to this question is the key to the story.

In the effort to find the answer we can say first of all that this patient died in uremia. When we consider the anuria, the great nonprotein nitrogen content of the blood, the high creatinine content and the convulsions, this assumption appears warranted. But what produced the uremia? The story and the course of the illness are consistent with two possibilities: (1) An overwhelming infection and (2) an intense poisoning.

In support of the first of these possibilities it can be pointed out that the patient started off with an infection, probably streptococcic, and that he had fever, leucocytosis, sore throat and lymphadenitis. I have seen such an infection produce this identical picture. Before proceeding further, however, we must dispose of another type of infection suggested by the positive typhoid agglutination. Dr. Riser, is this of any significance?

Dr. Wm. H. Riser, Associate Professor of

Medicine: I would agree that he did not have typhoid fever. I don't believe that in the titer reported the agglutination was of any significance.

Dr. McLester: I think we can agree that this man's illness began with a septic type of infection. Was this all? Or, did he in addition have sulphonamide poisoning? He was treated with sulfonamides a year previously, ten days previously and then again just before entering the hospital. Poisoning from drugs of this group can come to almost any one from enormous doses of the drug or to susceptible persons from small amounts given within the most carefully prescribed limits. Could this last apply here?

Dr. Riser: Yes, extreme leucocytosis such as this man had does occur after sulfonamide therapy. The same is true of his anemia. Sensitivity to the sulfa drugs in certain individuals produces remarkable changes.

Dr. McLester: When this man first became sick and sulfonamide drugs were prescribed he immediately vomited and this was repeated following the same medication just before admission to the hospital. One suspects that when he was treated one year earlier for a skin disorder with a sulfa drug he became sensitized to sulphonamides. Do you agree that this was a case of sulphonamide poisoning?

Student Bruce Elrod: Would a platelet count have been of significance?

Dr. Riser: I doubt if the platelets were affected in this case. Sulphonamides may produce leucopenia, anemia, thrombocytopenia or aplastic anemia; the lesions described here are not suggestive of platelet deficiency.

Dr. McLester: What about the maculopapular eruption? Dr. Noojin, how would you interpret this part of the story?

Dr. Ray O. Noojin, Associate Professor of Medicine (Dermatology and Syphilology): I certainly agree with you that this is probably all due to idiosyncrasy to the drug. So many people buy sulfathiazol ointment rather than other ointments and thus run a large chance of sensitizing themselves to the drug. It is often difficult to distinguish between dermatitis medicamentosa and a streptococcic eruption. This patient's dermatosis was a toxic erythema which could have been due either to an infection or a drug; I am inclined to incriminate the drug.

Dr. McLester: I am glad Dr. Noojin used the word "toxic" for when we put the entire story together I feel satisfied that it points to a purely toxic injury to the kidneys, possibly allergic in character, not to the type of mechanical injury sometimes attributed to the sharp edges of the sulphonamide crystals or to blockage of the tubules. Dr. Baker, isn't it true that in sulfonamide poisoning crystals of the drug are seldom found in the kidney?

Dr. Baker: I am not clear on this point. But crystals may collect at the ureteropelvic junction and cause obstruction there.

Dr. McLester: These drugs damage the kidney by causing necrosis of renal epithelium, chiefly of the tubules, and in this manner destroy renal function. But this is not all. These same compounds produce necrosis in the heart muscle, in the spleen, in the lymph nodes and in other organs.

Student Louis F. Rittlemeyer: What sulfa drug did he take and did he have sodium bicarbonate with it?

Dr. Kahn: We do not know which sulfa drug it was.

Dr. McLester: I doubt if this was of significance. We hear descriptions of precise differences in the manner of action of the different sulfa drugs, but I doubt if these differences are in truth as great as is sometimes thought. The toxic action of a sulfa drug after it is absorbed is probably due always to a chemical nucleus common to the entire group and, except for absorbability, is not influenced by relatively unimportant chemical differences. The simultaneous administration of sodium bicarbonate probably makes little or no difference in toxicity. When absorbed by a susceptible person the drugs of this group are probably all equally poisonous.

In addition to the renal damage that brought this man to his end, it is probable that he also had necrotic areas in other organs—heart, liver, spleen and lymph nodes. I believe that Dr. McManus is going to show us necrotic areas with infiltration of eosinophils in many organs.

Student Ira Patton: What was the cause of the intestinal hemorrhage?

Dr. McLester: I have no doubt that the same toxic effects that were felt by the kid-

ney, heart and other organs were experienced by the intestinal tract as well.

Student Bruce Elrod: The hemorrhage, then, was due to direct toxic effect on the gastric mucosa rather than increased permeability of capillaries?

Dr. McLester: Yes.

Student Patton: Do you think that with his sore throat this man could have had acute lymphadenitis to start with?

Dr. McLester: Probably so, but I don't think this could explain everything. From the start he probably had toxic necrosis of the renal epithelium and this gave color to the entire picture. The evidence presented warrants, I believe, the following:

CLINICAL DIAGNOSIS

Pharyngitis with lymphadenitis
Uremia, due to
Sulphonamide nephritis with destruction of the tubular epithelium
Necrotic areas in other organs

PATHOLOGICAL DISCUSSION—DR. McMANUS

Dr. J. F. A. McManus, Assistant Professor of Pathology: I was just wondering whether Dr. Noojin thinks skin therapy is a particularly sensitizing type of sulfonamide therapy or whether any route of therapy can sensitize. Dr. Noojin, do you know of any data about this?

Dr. Noojin: I want to emphasize the danger of the unrestricted sale of sulfonamide drugs in ointments. A person may treat a skin condition and so inadvertently sensitize himself to the sulfonamides. Pillsbury and others said that if sulfonamide ointments are used to treat skin conditions they shouldn't be used for more than five days at a time. The indiscriminate use of sulfa drugs in any fashion is to be deprecated.

Dr. McManus: At autopsy, which Dr. Richard Smoot performed, there were diffusely scattered minute hemorrhages in the skin, and vesicles on the neck and upper trunk. The heart was a bit enlarged, particularly on the right side, but nothing was to be seen grossly in the way of hemorrhage or necrosis. The liver was large and fatty. The spleen was swollen and quite firm. The kidneys presented a striking appearance of swelling and acute congestion, with petechial hemorrhages in the pelves. I might say that we looked carefully, both grossly and in sections, for crystals but none could be found. The following are the

Gross Findings

Petechial hemorrhages of skin
Paraduodenal hernia (incidental finding)
Right-sided cardiac dilatation and hypertrophy (weight 385 grams)
Hepatomegaly, weight 2400 grams
Splenic tumor, weight 370 grams
Bilateral renal enlargement with hemorrhages of cortices and pelves (right 330 grams, left 340 grams)
Necrotized and desquamated areas of pharyngeal epithelium

This lantern slide will give you a picture of the cut surface of the kidneys, the hemorrhages into the pelvis, the bulging of the renal substance past the capsule. The picture is somewhat different on the capsular surface. These darker areas are congestion or hemorrhage. In acute glomerulonephritis you would expect the hemorrhages to be smaller.

Now for the microscopic appearances: A section of pharynx shows necrotizing pharyngitis with necrotic, sloughing material in the more superficial portion. In areas deep down, where pharyngeal tissues are intact, there is beginning growth of blood vessels. Although much of the exudate is recent, some might date back to the illness which led to the taking of the sulphonamide drug. The heart muscle shows collections of cells about vessels and the vessels have hyaline walls. A few necrotic fibers are seen in these areas. A section of pancreas shows a diffuse cellular infiltration and a few necrotic cells. In the spleen there are petechial hemorrhages. In the adrenals a few cells are necrotic and there is lymphocytic and eosinophilic infiltration.

In the kidney the glomerulus fills the capsular space and there is a minimal excess of cells. The proximal tubules show disorder of their epithelium, fragmented free borders and swelling. This autopsy was performed about three hours after death so we don't lay this to postmortem autolysis. There is prominence of the basement membranes of the tubules, and lymphocytes and eosinophils in the interstitial tissue. Is this an interstitial nephritis or a glomerulonephritis plus interstitial nephritis? We can rule out glomerulonephritis fairly easily with studies of the basement membrane of

the glomeruli. There is none of the interstitial and intracapillary hyaline which one might expect, no smudging together of these loops. Here again are quite normal glomeruli, perhaps very slightly avascular but that is about all.

Finally, here in the brain there is necrotizing capillaritis with cells in perivascular spaces, both polymorphonuclear neutrophils and eosinophils. The last slide is skin showing a focus of cellular infiltration about a capillary. Lymphocytes and monocytes predominate but eosinophils are noted.

This summarizes our

Microscopic Appearances

Necrotizing pharyngitis
Cellular and perivascular infiltration (focal necroses) of myocardium, pancreas, spleen, adrenals and cerebral cortex
Acute interstitial nephritis with destruction of terminal tubules
Acute pneumonitis
Generalized eosinophilic reaction

ANATOMICAL DIAGNOSIS

(History of sulfonamide medication)
Necrotizing pharyngitis
Interstitial myocarditis, pneumonitis, pancreatitis and nephritis
Focal necroses of myocardium, spleen, pancreas and adrenals
Focal perivascular infiltrations of cerebral cortex and mid-brain with focal necrosis of capillary walls
Petechial hemorrhages of skin

In discussing these findings I will give you briefly the process followed in making the anatomical diagnosis in this case. The absence of the crystals led us to the conclusion that it could have been a systemic allergic reaction to a sulfonamide drug but it was necessary to rule out other conditions in which similar multiple lesions occur. Weil's disease shows multiple focal necroses and hemorrhages but there is quite commonly vacuolization of striated muscle, not seen in this case. Streptococcemia or meningococcemia would not produce this nephritis of distinctive type. I believe that with fulminating streptococcal infections there could have been a glomerulonephritis, not an interstitial nephritis. In scarlet fever one usually doesn't see cerebral lesions of this sort. In tularemia a specific type of focal reaction is encountered and that microscopic picture is not seen here.

The discussion of the mechanism of sulfonamide action has not progressed much since 1943 when Dr. Longcope (Medicine: 22, 251, 1943) reviewed the relationship between serum sickness and the sensitivity phenomena related to arsphenamine drugs, nirvanol drugs and sulfonamide drugs. Dr. Longcope suggested that certain specific radicals of the drugs may act as antigens when combined with proteins or that less often a radical itself may act as an antigen. It was suggested that one radical of the sulfonamide might be responsible for the hemolytic anemia, and another for the agranulocytosis. Some radical common to most of the sulfonamides may be responsible for the sensitivity reactions. They are like serum sickness and appear 7-9 days after taking the drug.

Dr. McLester: The uremia was what killed him. I was impressed with the changes in all of these organs. I don't believe you would find as widespread changes in a streptococcic infection as you find in this case.

Dr. McManus: I don't remember having seen one.

Dr. McLester: This case offers quite a lesson. I doubt if this man at any time had an amount of sulfonamide that could ordinarily have been regarded as excessive. The toxic element was introduced with the first few doses of the drug, for it was then in all likelihood that sensitization was initiated. I agree with Dr. McManus that this was presumably brought about by the union of a plasma protein with a sulphonamide radical; by this union the drug probably acquired antigenic properties.

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STATE DEPARTMENT OF HEALTH

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State Health Officer

THE FOUNDER OF MODERN TUBERCULOSIS TREATMENT

One day, a few years after the close of the War Between the States, a young New Yorker, looking forward happily to marriage and a career as a physician, challenged some of his young friends to a walking marathon from Fifty-Ninth Street to the Battery, quite a jaunt. The records do not show whether he or one of his companions won that match. Much more important is the fact that he was physically exhausted for several days afterward. Then, somewhat later, while he was on his honeymoon in England another disturbing condition developed—a swelling of the lymphatic glands. Still later there were other reminders that something was wrong.

Medical science then was not as far along as it now is of course and these departures from the normal, while somewhat disturbing, did not particularly alarm him or interfere with his and his bride's plans for establishing a home and beginning a professional career. After their return from their wedding trip they took a small cottage on Long Island and lived there very happily for about a year. But the ambitious young physician became convinced that he would get ahead in his profession faster if they would move into the city. About two months after doing so he was invited to enter into partnership with a well established New York physician. The future looked bright indeed.

But those symptoms persisted. The slightest exertion brought great fatigue, and he began to assume more and more markedly the appearance of a sick man. Finally, at the insistence of a fellow-physician, he allowed his temperature to be taken and found that it was 103 degrees. This brought a decision to have his lungs examined, and the examination showed that he had tuberculosis involving the upper two-thirds of his left lung. The tuberculosis patient's outlook was altogether different some 70 years ago from what it is today. In those medically unenlightened days a diagnosis of tuberculosis was regarded as virtually a death sentence.

"I pulled myself together, put as good a face on the matter as I could, and escaped from the office, after thanking the doctor for his examination," this young physician who had just heard such a verdict wrote later. "When I got outside, as I stood on Dr. Janeway's stoop, I felt stunned. It seemed to me the world had suddenly grown dark. The sun was shining, it is true, and the street was filled with the rush of noise and traffic, but to me the whole world had lost every vestige of brightness. I had consumption—that most fatal of diseases! . . . It meant death and I had never thought of death before! Was I ready to die? How could I tell my wife, whom I had just left in unconscious happiness with the little baby in our new home? And my rose-colored dreams of achievement and professional success in New York! They were all shattered now, and in their place only exile and the inevitable end remained!"

This young physician, as you probably have guessed already, was Dr. Edward Livingston Trudeau. The episode that has just been described might properly be characterized as a turning point in the conquest of tuberculosis, because it set in motion forces that have completely revolutionized the treatment of this disease in the United States.

Even though nearly everyone he had known who had had tuberculosis, including his own devoted brother, had succumbed to it, Dr. Trudeau decided to make a fight to regain his health. So he spent some time in the South and in Minnesota, only to find, however, that his condition showed no improvement. Death seemed even nearer than before.

There seemed to be nothing to do but wait for it to come. In order that that period of waiting might be spent as pleasantly as possible, he decided to make a trip into the heart of the Adirondacks and derive as much satisfaction as he could from a brief existence in the great forests for which

those storied mountains are famous. Arriving in May 1873 at Paul Smith's, a well known hunting lodge, thoroughly exhausted after a long, wearying journey, he was carried upstairs to his room by Mrs. Smith's brother. That gentleman was so struck by his emaciated condition, that he remarked: "Why, Doctor, you don't weigh no more than a dried lambskin."

Dr. Trudeau's stay at Paul Smith's had an excellent effect upon his health, and by September he was able to return to New York City, 15 pounds heavier than when he left, with his fever gone and his appetite restored. This improvement proved transitory, however, and indications that his condition was growing worse brought the decision to spend the next winter in the Adirondacks. So, accompanied this time by the faithful Mrs. Trudeau and their two children, he defied the rigors of the northern New York mountain climate and the judgment of medical men, who believed the tuberculous should spend the winter in the South. This time, as before, he stayed with the Paul Smiths. Again his health improved and he and his family enjoyed considerable happiness, in spite of the extreme cold, the rigorous life they were living, and the never-absent realization that he was literally fighting for his life.

They remained at Paul Smith's during the following summer, when the young physician was able to add to his depleted financial resources by practicing his profession in a limited way among the vacation visitors.

They hoped to stay where they were through the next winter and probably other winters as well, but their friends, the Paul Smiths, decided to open a hotel elsewhere. So they were under the necessity of making other arrangements. They decided to go to Saranac Lake, not the flourishing, world-famed community it now is, but a small village composed of a sawmill, a small hotel, a schoolhouse, a typical general store and a cluster of houses. Dr. Trudeau rented one of these, and he and Mrs. Trudeau set up housekeeping with some furniture loaned them by Mrs. Paul Smith. Saranac Lake was destined to be their home for the rest of his life, and he was destined to make it the tuberculosis Mecca of the world.

The improvement in his health which had come from his residence at Paul Smith's continued at Saranac Lake. Learning of it, other victims of the Great White Plague began arriving, and the community began to acquire something of a reputation as a health center.

About this time Dr. Trudeau read about the sanatorium that had been established in Silesia by Dr. Herman Brehmer, a well known German physician, who emphasized physical rest, fresh air and a careful supervision of the patient's habits entirely around the clock. As he learned more and more about this revolutionary experiment in life-saving, he determined to do at Saranac Lake what his German confrere had done in Europe. He knew there would be no lack of patients if he could provide suitable care at rates which they could afford, which meant that his charges must be less than the actual cost. This meant, in turn, that financial assistance must be obtained to meet the expected deficit. Appeals were made to well-to-do friends in New York City and elsewhere, and a start was made in February 1885 when the first cottage, since immortalized as "Little Red," was completed. It consisted of a single room some 14 by 18 feet, with a tiny front porch. Its furniture consisted of a woodburning stove, two cotbeds, two chairs, a washstand and a kerosene lamp. Its cost has been estimated at about $400. Two girls from the factory district of New York City were "Little Red's" first patients.

Learning of the discovery by Dr. Robert Koch, another German, of the tubercle bacillus, Dr. Trudeau did as much reading as he could about Dr. Koch's labors and their results and then spent some time in New York learning how to detect the bacillus under the microscope. Returning then to Saranac Lake, he fitted up his own laboratory in a small frame building, using such makeshift equipment as he could assemble.

"With this humble outfit," he wrote in his autobiography, "I began with much enthusiasm, in my imagination, the conquest of the tubercle bacillus, and, if I have never come 'within sight of the castles of my dreams,' I have at least made some progress along the road leading to them and started others in the same direction."

Dr. Trudeau has been called "the Beloved Physician," and his capacity for inspiring friendship was instrumental in bringing into

being the larger and more useful institution of healing which was his dream. As time went on, more and more money was turned over to him for making that dream a reality, and the sanatorium enjoyed a steady and rapid expansion. As it grew it sent out into the everyday world of normal, healthy men and women a rapidly increasing number of walking and talking salesmen of Saranac Lake and the sanatorium idea—persons who had recovered their health in the institution which Dr. Trudeau had founded and which had become his life work. Modest and self-effacing as he was, he himself could not escape a measure of the fame which came to Saranac Lake, and numerous honors were accorded him, notably his election in 1905 as the first president of the National Tuberculosis Association. Although he never completely recovered his health after that breakdown shortly after his marriage and found it necessary any number of times to go back to bed for periods of varying length, he failed by only about three years to live out the Biblical span of threescore years and ten. His death occurred on November 15, 1915.

A short time before the news of his passing was carried around the world this "Beloved Physician" delivered a speech in which he told in a few simple words of the change that had been brought about in the tuberculous patient's outlook during the past quarter-century. He said:

"Over the doors of the hospitals for consumptives 25 years ago might well have been written these words, 'All hope abandon ye who enter here'; while today, in the light of knew knowledge, we may justly place at the entrance of the modern sanatorium the more hopeful inscription, 'Cure sometimes, relief often, comfort always.' "

Another quarter-century has passed since those hopeful words were spoken by the men who had done so much to give them meaning. Today, thanks to a vastly wider use of the knowledge and practices which he placed in motion and thanks also to procedures developed since his day, we might well place over the doors of our tuberculosis sanatoria these words: "No hope abandon, ye who enter here."

BUREAU OF LABORATORIES

H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

JANUARY 1947

Examinations for diphtheria bacilli and Vincent's	367
Agglutination tests (typhoid, Brill's and undulant fever)	804
Typhoid cultures (blood, feces and urine)	744
Examinations for malaria	369
Examinations for intestinal parasites	2,020
Serologic tests for syphilis (blood and spinal fluid)	28,988
Darkfield examinations	51
Examinations for gonococci	3,616
Examinations for tubercle bacilli	1,952
Examinations for meningococci	2
Examinations for Negri bodies (microscopic)	105
Water examinations	1,164
Milk and dairy products examinations	2,539
Miscellaneous	501
Total	43,222

BUREAU OF PREVENTABLE DISEASES

CURRENT MORBIDITY STATISTICS

	Dec. '46	Jan. '47	E. E.* Jan. '47
Typhoid	5	3	4
Typhus	20	16	33
Malaria	32	14	75
Smallpox	0	0	2
Measles	64	92	218
Scarlet fever	55	52	101
Whooping cough	167	123	84
Diphtheria	45	27	42
Influenza	242	309	1782
Mumps	35	50	116
Poliomyelitis	5	2	2
Encephalitis	0	0	1
Chickenpox	90	153	197
Tetanus	3	2	3
Tuberculosis	257	181	200
Pellagra	4	1	8
Meningitis	3	10	21
Pneumonia	131	184	684
Syphilis	1193	1245	1042
Chancroid	25	23	10
Gonorrhea	562	690	395
Trachoma	0	0	0
Tularemia	1	1	1
Undulant fever	11	8	2
Dengue	0	0	0
Amebic dysentery	0	0	0
Cancer	205	325	0
Rabies—Human cases	0	0	0
Positive animal heads	40	46	0

As reported by physicians and including deaths not reported as cases.

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

BUREAU OF SANITATION

Arthur N. Beck, M. S. in S. E., Director

MUNICIPAL DDT RESIDUAL HOUSE SPRAYING PROGRAMS

Contributed by

J. L. Crockett, Jr.
Sr. San. and P. H. Eng.

The use of DDT insecticidal sprays for the control of household pests has revolutionized the fight against mosquitoes, flies, bed-

bugs and other insects. Its phenomenal residual power or lasting effect is the outstanding property of DDT. While the material has been widely publicized it was relatively unavailable to the general public until early in 1946.

The use of DDT undoubtedly received impetus from the antimalaria program sponsored by the U. S. Public Health Service and State Department of Health in parts of six Alabama counties in 1945 and twenty-one in 1946. As its purpose was primarily that of malaria control the operation of this program was limited to the districts of the Alabama counties having the greatest malaria transmitting potential. In these districts a DDT spray was applied to the interior surfaces of all houses except those in cities or towns. The reason for eliminating urban houses was because production of the malaria mosquito could be more economically controlled in thickly settled cities by conventional methods rather than by the use of DDT house sprays.

Officials of the City of Demopolis, having observed the results obtained by DDT house spraying in the rural areas surrounding their city during the summer of 1945, contacted the State Department of Health in May 1946 concerning a locally sponsored DDT house spraying program for their city. A cost estimate and plan of operation were submitted to the Mayor of Demopolis, and the City Council subsequently agreed to finance a municipal DDT spraying program. The City of Demopolis purchased the necessary materials and equipment and employed personnel who were trained in DDT house spraying by a representaive of the State Department of Health. By the end of July approximately 1000 houses had been treated with all costs being borne by the city government. This program was extremely popular as it resulted in remarkable reduction in flies, pest mosquitoes and other household pests. In view of the results obtained the City of Demopolis is planning to operate a municipally sponsored DDT house spraying program during the coming summer. Two other towns in Alabama, Luverne and Thomasville, also sponsored DDT projects during 1946, and like Demopolis are planning to continue this form of fly and mosquito control during 1947.

During the past three months cost estimates and plans for the operation of DDT spraying programs have been prepared for all cities and towns in those counties in which the U. S. Public Health Service-State Department of Health DDT malaria control program was operated in 1946. At their request the governing bodies of several other municipalities have been supplied with this information. On the basis of experience a municipality can operate a DDT house spraying program at a cost of about $1.25 per house. This cost includes all materials, incidental supplies, equipment and labor without subsidy from any other agency. DDT is now readily available and can be purchased in the form of a water miscible concentrate for less than $2.00 per gallon in lots of one or more 55-gallon drums. Local hardware stores usually stock hand sprayers adaptable to DDT spraying and personnel can be easily trained to apply the material correctly. The manner of operation suggested to municipalities is to treat all interior walls and ceilings, porches, doors and other openings of houses which are not screened or have poorly maintained screening. Treatment of windows, doors, porches and possibly the kitchen has been found to afford adequate protection from flies and mosquities to the occupants of well screened homes.

The common housefly has been incriminated with the trensmission of communicable diseases and is an annoying pest. The mosquito most commonly found in towns and cities is not of the species capable of transmitting malaria but can and does cause considerable discomfort. Even before the advent of DDT it was not uncommon to find municipalities involved in efforts to control these insects. However, these programs were rarely successful to the degree expected as they were felt to be too expensive, were not operated in the manner recommended or did not receive the supervision required. DDT residual house spraying is probably the most economical and successful method by which the average municipality can, through collective effort, control flies and mosquitoes. Its per capita cost is about that of a pest mosquito program involving the conventional methods of larviciding, ditching and ditch maintenance. In addition, it restricts the population of other household insects.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

PROVISIONAL MORTALITY STATISTICS

REPORTED NUMBER OF BIRTHS, STILLBIRTHS AND DEATHS FROM SPECIFIED CAUSES FOR THE MONTH DESIGNATED, AND COMPARATIVE RATES FOR 1946, 1945 AND 1944

Births, Stillbirths, and Causes of Death	Number Registered During November 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births, exclusive of stillbirths	7968	**	**	33.5	22.1	26.5
Stillbirths	162	**	**	19.9	28.8	29.6
Deaths, exclusive of stillbirths	1961	1130	831	8.2	8.1	8.8
Infant deaths:						
Under one year	242	133	109	30.4	47.1	41.6
Under one month	174	101	73	21.8	31.9	25.4
Typhoid and paratyphoid 1, 2	1	1		0.4	0.8	
Epidemic cerebrospinal meningitis 6	4	3	1	1.7	1.7	2.1
Scarlet fever 8						
Whooping cough 9	3	1	2	1.3	0.4	2.1
Diphtheria 10	3	3		1.3	2.9	6.3
Tuberculosis, all forms 13-22	99	40	59	41.6	39.1	43.8
Malaria 28	1		1	0.4	0.4	0.8
Syphilis 30	22	2	20	9.2	10.5	11.0
Influenza 33	18	12	6	7.6	13.9	8.8
Measles 35	1		1	0.4		
Poliomyelitis 36						
Encephalitis 37						0.4
Typhus fever 39					1.3	1.7
Cancer, all forms 45-55	182	132	50	76.5	71.5	74.2
Diabetes mellitus 61	23	18	5	9.7	15.1	10.1
Pellagra 69	4	2	2	1.7	3.4	3.1
Alcoholism 77	1		1	0.4	0.8	0.8
Intracranial lesions 83	197	97	100	82.8	69.4	86.0
Diseases of the heart 90-95	451	286	165	189.6	161.4	164.4
Diseases of the arteries 96-99	27	18	9	11.4	8.0	11.4
Bronchitis 106	6	6		2.5	2.9	2.1
Pneumonia, all forms 107-109	67	32	35	28.2	43.3	51.4
Diarrhea and enteritis (under 2) 119	11	6	5	4.6	5.5	8.0
Diarrhea and enteritis (2 and over) 120	5	2	3	2.1	2.9	0.4
Appendicitis 121	9	7	2	3.8	2.5	6.3
Hernia, intestinal obstruction 122	13	7	6	5.5	8.0	5.5
Cirrhosis of the liver 124	8	7	1	3.4	5.0	2.1
Nephritis, all forms 130-132	126	68	58	53.0	60.4	70.0
Puerperal causes 140-150	12	3	9	14.8	27.9	30.8
Puerperal septicemia 140, 142a, 147	4		4	4.9	7.4	9.2
Suicide 163-164	17	15	2	7.1	7.1	4.2
Homicide 165-168	38	17	21	16.0	10.1	15.6
Accidental deaths (exclusive of motor vehicle) 169, 171-195	117	72	45	49.2	35.7	48.9
Motor vehicle 170	65	47	18	27.3	26.5	15.6
All other known causes	301	190	111	126.5	126.5	139.1
Ill-defined and unknown causes 199-200	129	36	93	54.2	63.9	78.4

Births, Stillbirths, and Causes of Death	Number Registered During December 1946			Rate* (Annual Basis)		
	Total	White	Colored	1946	1945	1944
Births, exclusive of stillbirths	8011	**	**	32.6	24.2	27.4
Stillbirths	268	**	**	32.4	30.0	26.1
Deaths, exclusive of stillbirths	2176	1295	881	8.8	10.5	10.0
Infant deaths:						
Under one year	304	177	127	37.9	45.5	47.4
Under one month	216	135	81	27.0	28.3	28.6
Typhoid and paratyphoid 1, 2	2	1	1	0.8	0.4	
Cerebrospinal meningitis 6	2	1	1	0.8	2.0	0.8
Scarlet fever 8						0.4
Whooping cough 9	8	3	5	3.3	1.2	2.4
Diphtheria 10	6	5	1	2.4	5.3	2.8
Tuberculosis, all forms 13-22	83	40	43	33.8	38.2	35.1
Malaria 28					0.8	0.4
Syphilis 30	29	9	20	11.8	16.3	15.5
Influenza 33	31	17	14	12.6	37.4	21.6
Measles 35	2		2	0.8	0.4	
Poliomyelitis 36	1		1	0.4	0.4	1.2
Encephalitis 37					0.4	
Typhus fever 39					1.2	1.2
Cancer, all forms 45-55	195	137	58	79.3	81.8	74.6
Diabetes mellitus 61	47	34	13	19.1	15.1	13.9
Pellagra 69	8	3	5	3.3	4.9	5.7
Alcoholism 77	2	2		0.8	0.8	1.2
Intracranial lesions 83	209	123	86	85.0	107.0	107.3
Diseases of the heart 90-95	475	316	159	193.3	214.0	205.2
Diseases of the arteries 96-99	23	15	8	9.4	14.2	11.8
Bronchitis 106	4	2	2	1.6	1.6	1.2
Pneumonia, all forms 107-109	103	50	53	41.9	67.5	69.8
Diarrhea and enteritis (under two) 119	10	5	5	4.1	3.7	5.3
Diarrhea and enteritis (2 and over) 120	3	3		1.2	1.6	2.0
Appendicitis 121	12	6	6	4.9	4.9	4.5
Hernia, intestinal obstruction 122	13	10	3	5.3	6.1	5.3
Cirrhosis of the liver 124	14	10	4	5.7	5.7	2.8
Nephritis, all forms 130-132	151	88	63	61.4	66.7	74.6
Puerperal causes 140-150	19	7	12	22.9	26.1	29.0
Puerperal septicemia 140, 142a, 147	7	2	5	8.5	11.4	10.2
Suicide 163-164	16	15	1	6.5	6.5	2.8
Homicide 165-168	41	8	33	16.7	8.1	12.2
Accidental deaths (exclusive of motor vehicle) 169, 171-195	103	68	35	41.9	56.6	46.9
Motor vehicle 170	61	46	15	24.8	32.1	23.7
All other known causes	355	222	133	144.4	150.1	148.9
Ill-defined and unknown causes 199-200	148	49	99	60.2	85.4	93.8

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births; deaths from specified causes per 100,000 population; deaths from puerperal causes per 10,000 total births. Annual rates given here are those that would result if the number of events registered for the designated month were exactly one-twelfth of the annual total for the year specified.

**Not available.

BOOK ABSTRACTS AND REVIEWS

Post-Graduate Obstetrics. By William F. Mengert, M. D., Professor and Chairman, Department of Obstetrics and Gynecology, Southwestern Medical College. Chairman, Obstetrics and Gynecology, Parkland Hospital, Dallas, Texas. Cloth. Price, $5.00. Pp. 373, with 123 illustrations. New York and London: Paul B. Hoeber, Inc., 1946.

For a long time there has been a need for a clear, concise, yet brief textbook of obstetrics which may be used for quick reference by the general practitioner without his having to read pages of theory, opposing views, and varying opinions of various authorities. Mengert, in his preface, states that his book is intended as a practical aid for the general practitioner. He has succeeded admirably in producing a text which will be a valuable guide for the physician whose practice covers a wide field and whose reading time is limited.

The text covers normal obstetrics and the more frequent complications likely to be encountered by the general practitioner. Since the book was planned primarily as a review for the general practitioner, the author very wisely omits discussion of the rare complications. Several complications which are considered moot points by most obstetricians are discussed dogmatically but this is necessary to obtain the brevity and simplicity toward which the author strives. One of the best things about this book is the way it repeatedly stresses conservatism. Radical intervention is repeatedly warned against.

The writing style is good and the book is easy to read. Matters of purely historical and academic interest are omitted and there are no lengthy theoretic discussions which would be of interest only to the specialist. Illustrations are not as profuse as in most textbooks of obstetrics but all the pictures, diagrams, and photomicrographs are original. Many are semidiagrammatic but all are clear, simple, and instructive.

This book is a valuable addition to the obstetric literature and can be a boon to the busy practitioner who has little time for specialized reading. It is wholeheartedly recommended to the profession and especially to the general practitioner.

Joe W. Perry, M. D.

Muscle Testing—Techniques of Manual Examination. By Lucille Daniels, M. A., Director and Associate Professor of Physical Therapy, Stanford University; Marian Williams, M. A., Assistant Professor of Physical Therapy, Stanford University; and Catherine Worthingham, M. A., Director of Professional Education, The National Foundation for Infantile Paralysis, Inc. Designed and illustrated by Harold Black. Cloth. Price, $2.50. Pp. 189, with 349 diagrammatic line drawings. Philadelphia and London: W. B. Saunders Company, 1946.

Muscle testing for paralysis and weakness, originally limited to the orthopedic surgeon, orthopedic nurse, and physiotherapist, has more recently taken its place as an essential part of training of the medical student, internist, general practitioner, and surgeon. Kinesiology and kinesiodynamics play an important part in the study of body mechanics and posture, and in the effects of nerve pathology. Not only in anterior poliomyelitis but in such disease entities as peripheral neuritis, toxic effects at the myoneural junction and in the residua of trauma, muscle testing becomes an essential part of the study of the patient's progress toward total recovery.

This book on muscle testing by Daniels, Williams, and Worthingham (aided in its completion by a grant from the National Foundation for Infantile Paralysis, Inc.) has filled a need in bringing methods, instructions, and techniques to every interested individual. The diagrammatic line drawings by Harold Black bring to the reader's eye an immediate visualization of how to do the testing for each muscle group action and also how to evaluate it in terms of the patient's accomplishment.

This is a meaty book with concise, sharp descriptions of muscle action and is profusely illustrated. It is a worthy addition to the medical library of each practitioner.

Elias N. Kaiser, M. D.

Hygiene. By F. L. Meredith, B. Sc., M. D., Professor of Hygiene and Public Health, Tufts College. Fourth edition. Cloth. Price $4.00. Pp. 838, with 155 illustrations and tables. Philadelphia and Toronto: The Blakiston Company, 1946.

Dr. Meredith has produced an admirable book, written in a clear, concise, engaging style with a commendable scarcity of scientific medical terminology, making it an ideal text for collegian and non-collegian alike. Divided into nine parts, it comprises: 1, The Health Situation in the United States, mostly statistical and actuarial; 2, The Body in Health and Disease, discussing simple physiological and pathological processes; 3, Forces for Health, outlining history and development; 4, The Problem of Infection, concerned broadly with public hygiene; 5, Other Major Health Problems, dealing with systemic diseases and malignancies; 6, Accidents and Poisonings, concerning first aid, self-medication and drug habituation; 7, The Hygiene of Everyday Life, for the most part personal in application; 8, Reproduction, dealing with sex relations, heredity and parenthood; and 9, Mental Health, explaining mental hygiene, the relations of brain and nerves to mental health, together with self, sex and social impulses. Excellent as the whole book is, the chapters on reproduction and on mental health merit special praise for the clarity, simplicity and tact with which they are handled. Study of this text, regardless of the type of

course pursued, should be compulsory for all students, so much of knowledge invaluable to our young people is within its covers. Indeed, the presentation is so good and its bearings on life so varied that it should be of interest to most and of great value to all.

H. P. Sawyer, M. D.

An Integrated Practice of Medicine. A Complete General Practice of Medicine From Differential Diagnosis by Presenting Symptoms to Specific Management of the Patient. By Harold Thomas Hyman, M. D. Cloth. Price, $50.00. Pp. 4336. 1184 illustrations, 305 in color. 319 Differential Diagnostic Tables. Philadelphia and London: W. B. Saunders Company, 1946.

Despite the great stress put upon specialization by the Army, the Veterans Administration, and most medical educators, the general practitioner still treats the great majority of the sick population of the United States. There are some people who are beginning to realize that the passing of the old family physician would be a great tragedy and there is even more discussion of the possibility of recognizing his achievements through Certification Boards similar to those which qualify specialists in the various fields of medicine and surgery. The publishers of medical books do not seem so pessimistic about the general practitioner. For years, the medical book market has seen more books published for the general practitioner than for all the specialities combined. One does not have to look far to find books on Internal Medicine in General Practice, Treatment in General Practice, Urology for the General Practitioner, Psychiatry for the General Practitioner, The Eye in General Practice, etc. Saunders has put out many of these volumes in the past. Now the company has published a four-thousand page work (four volumes and index), including in one set all of the subjects with which the ideal practitioner should be acquainted. Unlike many large sets of books, this one loses nothing by its size. As the name implies, it is well integrated. Just enough space is given to each subject. There is no long dissertation on some rare disease because an author was overenthusiastic and an editor too polite to cut it down. There are sections on dermatology, pediatrics, obstetrics, gynecology, urology, orthopedics, minor surgery, neurology and psychiatry. Each is detailed enough without being too technical and is obviously not written to make a specialist out of the reader.

The publication by the W. B. Saunders Company of An Integrated Practice of Medicine by Harold T. Hyman makes available to Internist and General Practitioner, the finest work on medical practice, and particularly on medical diagnosis, that has yet been written. Hyman has written primarily for the man in general practice and has included sections on dermatology, pediatrics, obstetrics, urology, neurology, psychiatry, gynecology and obstetrics. Still, the greater part of the four volumes deals with pure medicine. The introductory remarks that preface each subject contain very valuable information on anatomy and physiology that makes a good background for the clinical discussion that follows. The volumes are lavishly illustrated with x-ray reproductions, electrocardiograms, microscopic drawings, photographs, charts, tables and color photographs. The tables of differential diagnosis of the important symptoms are probably the most valuable features of the book. In the index a special section is given over to these tables and since these outline causes of almost every important symptom, they serve as a very practical guide in differential diagnosis.

In a recent issue of Time, two-thirds of a page under the section on Medicine is devoted to reviewing this book. Anyone interested in this set will find the review interesting and worth reading. The reviewer endorses the set enthusiastically and recommends it to all internists and general practitioners.

C. K. Weil, M. D.

Bacillary Dysentery, Colitis and Enteritis. By Joseph Felsen, B. A., M. D., Director of Medical Research, Bronx Hospital, New York; Director of International and Pan-American Dysentery Registry. Cloth. Price $6.00. Pp. 618, with 145 illustrations. Philadelphia and London: W. B. Saunders Company, 1945.

In this monograph is correlated the investigations of the pathologist and the clinician on the subject of the dysenteries, colitis and enteritis. As pointed out, the dysenteries have been very important in all wars where they often reach epidemic size. It is important in these conflicts and is primarily a hand to mouth disease, often designated an "FFF Disease" (food, fingers, flies).

The first portion of the book is an extensive epidemiologic record of bacillary dysentery.

The next portion deals with the systemic complications and manifestations, which include penumonia, arthritis, vitamin deficiencies, edema, ocular manifestations and renal complications.

The text as a whole is not easy to read because inserted in the paragraphs and in the sentences themselves are the reference points. This interrupts the easy reading of the important material. It appears to the reviewer that numbers indicating the references in the chapter would have made it much easier on the reader.

The clinical, bacteriologic, serologic, and finally the pathologic aspects of the bacillary dysenteries are not only extensively handled but very completely and accurately described.

Therapy as outlined includes the sulfonamides, serum, vaccines, and the supportive therapy such as diet, vitamins, and palliative medications.

The bibliography attached to the monograph is very extensive, indicating not only the amount of work that has been published on these subjects but also the extensive investigation of the author. The bibliography alone covers almost 100 pages of very close print.

The monograph serves as an excellent reference book for the clinician, pathologist and public health worker. It stands as an authoritative work on the subject and belongs particularly in the library of internists and public health officers.

Norman VanWezel, M. D.

The National Formulary. Eighth edition. National Formulary VIII. Prepared by the Committee on National Formulary under the Supervision of the Council, by authority of the American Pharmaceutical Association. Official from April 1, 1947. Published by the American Pharmaceutical Association, Washington 7, D. C., 1946.

New drugs and new preparations and mixtures of old drugs appear on the market with such rapidity that the physician finds it difficult to keep up with all of them. It would be quite convenient if he could have at his finger tips a single volume which contained the essential facts on each drug. There is no such single volume available.

The Pharmacopeia of the United States, published and revised every ten years, is the Bible on drugs. Its object is to provide standards of identity, quality and purity of drugs and medicines sufficiently used in the United States and its possessions.

The National Formulary sets standards of strength, quality and purity of drugs, the selection of drugs being based on therapeutic value and extent of use. It is published under the authority of the American Pharmaceutical Association. There appears to be little difference in the purpose of the two volumes, but the Pharmacopeia seems to be a little more generally accepted as official. Both volumes refer to average dosage, but do not discuss indications, pharmacology, toxicity or any related therapeutic subject. Both volumes are many years behind times and make no mention of newer drugs which have been given ample clinical trial and have proved their value.

For information on these newer drugs, one should consult the American Medical Association's New and Unofficial Remedies. Then there are times when one wants to know something about a drug product which is not approved by the A. M. A. Perhaps you only want to know the exact nature of the material a patient is taking. This can be gotten from a book by Gutman called Modern Drug Encyclopedia and Therapeutic Guide which is published by Hoeber. This book is now several years old, but supplements are published monthly.

Druggists should have on hand the latest U. S. P. and N. F. The physician who wants a volume of this type can decide for himself from the above description which volume or volumes best meet his needs.

C. K. Weil, M. D.

Gynecological and Obstetrical Pathology. Second edition. By Emil Novak, A. B., M. D., D. Sc. (Hon. Dublin), F. A. C. S. Associate in Gynecology, the Johns Hopkins Medical School; Gynecologist, Bon Secours and St. Agnes Hospitals, Baltimore. Cloth. Price, $7.50. Pp. 570, with 542 illustrations. Philadelphia and London: W. B. Saunders Company, 1946.

When the first edition of Novak's textbook of pathology was published, it soon made a place for itself as the leading reference work for all who are interested in the subject. It filled a need which no previous text, either primarily of obstetrics and gynecology or of pathology, had been able to fill because it gave the reader a complete and concise discussion of pelvic pathology. It was written in a simple and clear style characteristic of Dr. Novak's writings and lectures. Its illustrations went further than any textbook previously had gone toward demonstrating to the reader what he should expect to see when examining a pathology specimen. It made the study of pelvic pathology a pleasure rather than drudgery. The text was well received and it deserved all the recognition given it.

The second edition is an improvement over the first. Many new illustrations have been added and there are fifteen color photographs. The illustrations in this text, especially the photomicrographs, are the best that the reviewer has ever seen. For most lesions,several different variations are presented to show various phases or degrees of the same condition.

The first chapter is devoted to the endocrinology of the menstrual cycle and pregnancy, showing the histologic changes that occur and explaining the relationship betwen hormone stimulation and response of the various organs to the stimulation. In subsequent chapters, each organ is considered separately and all diseases of that organ are illustrated—usually in the gross and microscopic. Before discussing the disease of each organ, a review of the normal histology is given.

Thirty-two pages are devoted to cervical cancer and there are thirty-two illustrations of the various types and degrees of this lesion. Adequate space is devoted to diagnosis of early cancer and precancerous conditions. One hundred and fifty-two pages are devoted to the ovary. A complete discussion is given of the embryology and histology of the ovary as an introduction to the disease conditions of the ovary. Novak's classification of ovarian tumors is a simple one. Tumors of the ovary are discussed in detail and beautifully illustrated. Ample space is given to implantation and placentation and the discussion of diseases of the placenta is unique in its completeness.

For those physicians interested in the structure of normal and diseased conditions of the female pelvic organs, this is the best textbook ever published. It should be required reading for all physicians, whether specialists or not, who treat women.

Joe W. Perry, M. D.

Whither, Doctor?—Are the dark ages of medicine even now creeping in upon us and we know it not? Will men of medicine have the foresight, the stamina, the sagacity to extricate themselves and their profession from the maelstrom, or will they allow themselves to be drawn in supinely, further and further, until in the stupor of lethargy they are swirled to its very depths? The shadows loom large in the gathering fog, but the way out is not yet cut off. Nor will it be if a united profession puts forth immediate, valiant and steadfast effort to avert disaster.—*Editorial, J. Florida M. A., March* '47.

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Miscellany

SHOW EFFECT FOLIC ACID HAS IN PERNICIOUS ANEMIA CASES

TWO CLEVELAND PHYSICIANS SAY IT SHOULD NOT SERVE AS COMPLETE SUBSTITUTE FOR EXTRACT OF LIVER

The use of folic acid, a part of the Vitamin B complex group, as a complete substitute for extract of liver in the treatment of pernicious anemia is not justified, according to two Cleveland physicians.

Writing in the March 15 issue of The Journal of the American Medical Association, the physicians—Robert W. Heinle and Arnold D. Welch—report an "explosive" relapse of the nervous system "in a patient on folic acid therapy who had attained and maintained completely normal blood findings. It occurred suddenly, progressed rapidly and responded to liver therapy slowly."

Pernicious anemia is considered a disease of middle and old age because it is usually found in people between 40 and 65. It is a relatively common disease in North America. The onset is slow and insidious. Languor, weakness and breathlessness are not marked at first, but later become extreme. The blood picture is much changed, the red corpuscles being greatly reduced in number and very abnormal in shape. Nervous symptoms manifest themselves in numbness and tingling.

The doctors, who are from the departments of Medicine and Pharmacology, Western Reserve University School of Medicine and the Lakeside Hospital, cite the case of a man, 68, treated by them. This patient had been hospitalized because of heart disease and since that time had experienced slight numbness of the hands and inability to distinguish accurately the size of objects placed in his hands. There had been a loss of weight of 30 pounds in the last three months and it was observed that the skin had assumed a yellow color.

A diagnosis of pernicious anemia was made and treatment begun with daily doses of synthetic folic acid administered by mouth. Meanwhile, although the patient's appetite was good, his diet was restricted to liquids because all but four of his teeth had been extracted.

"Within three or four days after the removal of the remaining teeth," state the authors, "there was a sudden pronounced increase in numbness of the hands. In two weeks this had progressed to a point where his arms were completely numb from the elbows downward."

Although the dosage of the vitamin was increased, the numbness spread to the feet. When it was noted that the patient became progressively worse, being numb from the hips downward and from the elbows downward, the folic acid therapy was discontinued and treatment with liver extract was instituted. Within a month the patient showed improvement.

The authors point out that to date they have "treated and maintained 47 patients with pernicious anemia with synthetic folic acid for periods up to one year. Of this number, only two others in addition to the patient described have exhibited definite neurologic relapse. These relapses were mild and responded readily to therapy with extract of liver." In all three patients the dietary intake was poor.

The authors conclude that "the clinical use of folic acid as a complete substitute for extracts of liver in treating pernicious anemia is not justified."

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*Ref:—Barach, A. L., M.D., Levenson, E., and Rumsey, C. C. Jr. The Use of an Injector Meter for Maintenance of a Prescribed Oxygen Concentration and Elimination of Carbon Dioxide in a Closed Head Tent. American Journal of Medicine—April 1947 (in Press).

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BACKGROUND

OVER THREE DECADES OF CLINICAL EXPERIENCE

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MENOPAUSE SYNDROME

ELBERT H. SANDERS, M. D.
Birmingham, Alabama

There is no phase of medical practice that does not encounter the patient who suffers with the syndrome which has been designated as the "Menopause Syndrome." Everyone who writes a paper is most anxious to emphasize the problem that his subject presents, but the menopausal patient speaks for her or himself. There are none of us who sees many of these patients who does not have the inclination to tell them to go home and forget it. Unfortunately, for the patients and us, it is impossible for them to do so. A better understanding of their problems might make us a little more charitable with them and help them to overcome at least a large part of their troubles.

The menopausal syndrome is a fairly consistent group of symptoms which are most commonly associated with the age of menopause in women, whether natural or induced, and in a smaller group of men, usually in their fourth or fifth decade. These symptoms, however, can be found in any age group from puberty into senility, and it is quite common to find the syndrome in young women with pelvic inflammation in which there is some impairment of the ovarian function. I have had a patient who was eighty, and still having these symptoms since the time of menopause at forty-eight. She was easily relieved by proper therapy. The functional disturbance responsible for the symptoms is the body reaction to the withdrawal of estrogens, or androgens in the male, faster than the body can adjust itself to the lessened degree of hormone present. The symptoms of menopause syndrome are well known to all: hot flashes, or chilly sensations, or both; and emotional instability, with frequent crying spells, irritability, insomnia and the other symptoms of increased nervousness. The nervousness may, or may not, be accompanied by a fine or coarse tremor, and the confusion with hyperthyroidism makes a metabolism test imperative in many of these cases. In these cases the basal metabolism rate is normal or slightly lowered, and some clinicians have explained this lowered rate on a psychosomatic basis, while others have insisted that it is due to a true hypothyroidism. These patients do not as a rule tolerate thyroid medication well, which points to the absence of a hypothyroid state in most of them with a lowered basal metabolism rate.

In the differential diagnosis the most confusing condition is any one of the neuroses without menopausal influence from a hormonal standpoint. The only signs which are characteristic of the menopause are the vasomotor phenomena, the most common of which is the hot flash or flush. These patients have a rapid dilatation of the small vessels of the skin of the face, neck and upper thorax and, at times, the arms, which is not unlike the reaction of the nitrites, and there is an unpleasant feeling of burning warmth and stinging. At the same time there is often an associated palpitation and general feeling of anxiety which was aptly described by a colored patient as "tremblified." In some patients no history of hot flushes is present, but there is a history of definite chilly sensations lasting several

minutes and occurring several times a day. There are often other confusing chilly sensations, but the response of this to hormonal therapy is specific and often the diagnostic point of differentiation. Any psychologic aberration which shows up for the first time at the age of menopause or one that shows exacerbation at this time must be considered as possibly one that estrogen or androgen therapy will help, but for the most part, unless these hot flushes or cold spells are present, the hormonal therapy is no more than suggestive therapy.

There is no set pattern as to the type of emotional disturbance which accompanies the menopause. In many cases the patient has had one type of disturbance or another for many years, but in the hard work of having and raising children, keeping house and making a home she has been too busy to notice these symptoms more than a little, but when the age of menopause comes on the children are getting larger and away in school and demand less of her time and affection. In many cases she realizes for the first time that she is almost alone. There can be no more children because her reproductive phase of life is ending and with it she feels that her ability to be a competent sexual mate for her husband may also be impaired. She has seen her neighbor's husband, and often her own, beginning to find outside amorous companions in futile effort to prove to himself that he is suffering no impotence after he has begun to wonder if his prowess is slipping. In addition, the children who have furnished her with a source of affection are getting married, and here again she realizes that she is to take a second place in the affection of those she loves most.

In such a situation as described above it is not unusual to find that depressive reactions are common in this age group. The most characteristic symptom of depression is crying spells which occur without cause known to her. Another quite common reaction which manifests itself is that of anxiety and represents a coming to the surface of the repressed fears that have accumulated since childhood, in addition to those associated with the thoughts of growing older and being less desirable and useful. There are attacks of vasomotor collapse, with syncope, palpitation, dizziness and, at times, chest pains over the heart. In the minds of these people, these strange and powerful sensations are signs of serious disease which in turn make the anxiety that caused them more severe, and so a vicious circle is set up. It is for t h i s reason that a well done, thorough physical and laboratory examination becomes one of the best therapeutic agents in determining and assuring the patient that no serious disease is present.

Any of the various emotional reactions may be set up, but depressive and anxiety reactions are the most numerous. In a well rounded patient with emotional balance nearing normal, the symptoms of the menopause are either very slight or the patient tolerates them well, for this type of patient rarely presents herself for treatment.

In the consideration of the treatment of these patients there are three valuable groups of therapeutic agents. T h e most widely publicised of these are those advocated by detail men who claim to have an estrogen or androgen either a little stronger or a little cheaper, or just plain better than the others. There is little need to call attention to these valuable drugs except to give a little personal observation on the matter and call attention to mistakes that are commonly made in their use. Of equal importance are the aids of sedatives and psychotherapy.

Psychotherapy is the most neglected of the aids for two reasons. One is that one is not well enough versed in the techniques of the deeper veins of psychotherapy, and the other is the awesome fear that many have of the word itself. Realizing that all of the dangers of oversimplification are present below, the m a i n psychotherapy t h a t is needed can be summed up in one word, reassurance. Simple assurance will not express it. The patient must be assured and reassured time and time again to the point that the physician gets tired of explaining that these symptoms are not dangerous to life and that the patient will cease to have them with treatment and the passage of time. After stating this to the point of exasperation and the patient asks, "Are you sure, Doctor?," you must be emphatic when you say "Yes."

At the age in which the majority of these symptom-complexes occur, a man or woman realizes that he is making a turn towards an

older, slower life and, in the case of a woman, the childbearing period which is so intimately tied up with her emotional outlook is about over. She fears that she will be physically less attractive to her sexual partner. There is also the realization at this time that her children no longer need her as they have in the past, as they begin to take on more and more outside activities and marry. It is always hard for one to realize that one is not as necessary or as desirable as one was, and when superimposed upon this is the functional aberrations associated with menopause, it is not hard to see why these patients have to be reassured time and time again. She has fear in her heart, and fear is never reasonable. It is reasonable that telling her a half dozen times that she will be well is enough and that her heart is sound and good, that her nerves will get better, and that she will grow to enjoy the slower but mellowed life after the driving force of sex and reproduction have quieted down, but her fear is not reasonable and she must be told over and over again. She faces a great unknown, and it is doubt and uncertainty that intensify her illness. The physician must offer her comfort and an optimistic outlook as she has had no time to be philosophical about this age to come, but has had to raise her children and do her work and has given no thought to the future, when all at once she is faced with the realization that she is getting old.

Sedation has no more clear-cut indication than here, because the condition is usually temporary and will be greatly relieved by mild and moderate sedation. There are many sedatives, but none meets all of the requirements. The most widely used at the present time are the barbiturates whose numbers are legion, but the principal difference in them is the duration of action. In the patient who is under mild sedation, the longer acting drugs are the choice. Phenobarbital is long acting, reasonable in price, and shows no toxic effects over long periods of time unless the dosage is excessive. The dose usually used is from ¼ to½ grains three or four times a day, and the smaller dose is usually sufficient. The chief drawback to phenobarbital is that if enough of the drug is given to control the nervous symptoms many patients can not stay awake or attend to their usual duties. In such cases the dose must be reduced at the expense of the return of some nervousness, or another drug used.

The bromides are commonly used, although not so commonly as in the past. They are more effective than the barbiturates in the control of nervousness without inducing sleepiness, but the dose is cumulative and leads to bromidism unless small doses are given. The symptoms of bromidism range from a skin rash to exacerbation of the same nervous symptoms for which the bromide was given, up to the stage of toxic delirium in the extreme case. It is because of these untoward symptoms that the bromides have given way to the barbiturates. However, the bromides are not without their virtue, and if the difficulties are kept in mind, they can be safely used in small doses. A mixture of phenobarbital with a small amount of bromide seems to be rather effective and with few side reactions. Such a preparation is available in Sedaphen, which is recommended to be given in doses of one drachm, three or four times daily. This dose seems to be a little too much in many cases and equal results can be obtained with a prescription of four ounces in two ounces of water, or other vehicle, and giving four doses a day. Sedation is an individual problem and the optimum dose is the smallest dose that will give satisfactory results without causing any undesired effect, so this is only a suggested starting point for regulation of the dose.

Choral hydrate or paraldehyde may be of value in selected cases as the sedative agent.

It is difficult to answer the question as to how long the sedation should be continued, but in many cases the tendency is to stop the sedative before sufficient improvement has taken place.

In discussing the use of hormonal therapy the first statement to be made is a warning not to use too large doses and do not give the hormone over too long a period of time. The optimum dose at each injection is the amount that will just exactly keep the symptoms in check. The time between injections is the longest time over which the symptoms will be held in check by the optimum dose. The first dose, or doses, should be large enough to check the hot flushes,

and this dose persisted in for several weeks, and then gradually lowered.

The injection treatment of these disorders is recommended because the results are probably superior to those of oral therapy, although from the estrogenic standpoint alone oral therapy will give the same hormonal response. The visit to the physician, the contact with him, the opportunity for reassurance, the regulation of dosage and general interest shown in her are also important therapeutic factors.

There are many brands of estrogenic substances on the market which consist of varying proportions of the estrogenic factors to make a total of the specified number of units. The most commonly used are in oily solution, which is absorbed in a few days' time and must be repeated. The type of oil seems to be important only in the allergic case sensitive to one or the other. Unit for unit there is little difference in the various preparations as far as the response clinically is concerned. In recent years there have been attempts at replacement of estrogens and androgens by the use of implanted pellets, and later aqueous suspensions have been offered for the same type of long action. In clinical usage the injection of oily solutions still seems to be the treatment of choice.

In most female cases 10,000 units of estrogenic material are usually successful in stopping the hot flushes, and when they return in four to seven days the dose may be repeated. A good rule to use in determining the frequency is to have the patient return on the day she first begins to have hot flushes again, or, in the case where the symptoms are not relieved, to return in four days. It is not often necessary to increase the dose, but it may be necessary to give three or four injections more frequently until the symptoms abate.

This dosage is not nearly so large as suggested by some, and is larger than that suggested by others, but it is a moderate dose and will give good results. As soon as the symptoms are controlled and the hot flushes are not present, one may begin to reduce the dose, but it is usually better to allow the patient to become emotionally better adjusted and feeling better before dosage is cut. After this, a reduction of about 500 units a week is tried, and as the symptoms recur, it may be necessary again to increase the dose a little, but the course of dosage should be gradually down. It is at the times that the symptoms recur from cutting the dosage that the patient again becomes discouraged. It is the duty of the physician not to share her discouragement, but to give her the moral support and reassurance that she needs. In the average case this regimen will take several months or even longer, but the patient can be relieved in great measure with it and will not be kept in the menopausal state too long by the continued administration of excessive amounts of estrogens each week and every week by the office nurse who gives the same dose over and over.

The male syndrome is handled in the same way, except that testosterone proprionate is given in doses which start at five mgm. and may be regulated as in the estrogens. The principal condition which needs attention in the male is the effectiveness of bromide in causing a depression of the sexual potency, so that phenobarbital is probably a better drug for men. There may be a revival of sexual prowess under the above regimen where it has been lost, but it is probably more psychogenic than due to the testosterone.

There are many who object to the use of hormonal therapy unless it is cylic, but in clinical practice it seems to make little difference. The question of the use of hormonal therapy in cancer and the cancer age always comes up and, in answer to that, one must say that in the very beginning these patients should have a thorough examination and laboratory work-up after a complete but often exasperatingly long history. It it in this age group that one finds the early manifestations of the prime causes of death, such as heart disease, cancer, hypertension, nephritis and diabetes. After a thorough examination, which is also of great therapeutic value in these cases, there is no appreciable danger in the use of these drugs unless there is a cancer present or suspected.

As a parting reminder, attention should be called to surgery in these cases. In the check-up that precedes treatment of these cases, one will find numerous surgical conditions that should be corrected. In the case of imperative life-saving surgery no

comment need be made, but in the many other conditions requiring surgery, do not correct these until the patient is in much better psychic shape. Above all do not recommend surgery as a panacea for these nervous complaints, for any benefit from surgery is temporary except in the one instance of a toxic thyroid, and when the temporary benefit is gone they will be worse off than before, with much less confidence in her physician and medicine in general.

MEDICINE AND NATIONAL SECURITY

EDWARD H. BORTZ, M. D.

Philadelphia, Pa.

INTRODUCTION

An effective medical service available to all portions of the population is a primary essential for the national security. The rapid mobilization of medical personnel at the outbreak of the last war withdrew large numbers of doctors from civilian practice and placed them at the command of military leaders. Over 60,000 medical doctors joined the military service for approximately 15,000,000 military personnel. This left about 100,000 doctors available for the remaining 125,000,000 of the nation's population. An oversupply of doctors resulted within the military ranks. While here and there shortages may have temporarily developed, at no long period of time was there any lack of doctors; in numerous theatres and installations there was an overabundance.

In the interest of a higher degree of efficiency of medical service for the armed forces and the population of the nation a study of the medical experiences of doctors should prove of value. This survey should include a consideration of medical needs, assignments to duty, utilization, rotation of service, promotion, etc. Such an examination is of great importance today when one considers the present instability of international relationships. The diplomatic branches of the nation, the military services, social organizations and educational agencies are reviewing their experiences for the purpose of bringing about a more efficient plan of action in the event of future need. A review of the medical experiences should prove enlightening.

ACTION BY THE AMERICAN MEDICAL ASSOCIATION

At its first meeting following the cessation of hostilities the House of Delegates of the American Medical Association in December 1945 created a Committee for the purpose of reviewing the experiences of medical officers while they were on active military duty. The motives behind this action were directed towards a more efficient and more flexible medical organization in the event of future national involvement.

QUESTIONNAIRE

The American Medical Association has authorized the distribution of a questionnaire to medical officers and others, over 60,000 in all, for the purpose of collecting data which would furnish an overall, reasonably accurate estimate of the professional activities of doctors during the last war. The Committee appointed for this purpose plans to submit the results of the survey to a number of key individuals who are in position to evaluate the broader implications of this information.

At the December 1946 meeting of the House of Delegates the Reference Committee appointed by the House to examine the reports of the Committee on National Emergency Medical Service recommended that the Committee amplify its field of study by sending questionnaires to an appropriate number of physicians who remained in civilian practice during the war. Accordingly, another questionnaire has been drawn up under the direction of Dr. Frank

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Talk given in Chicago, February 10, 1947, at the forty-third Annual Congress on Medical Education and Licensure; sponsored by the Council on Medical Education and Hospitals, American Medical Association and the Federation of State Medical Boards.

President-Elect and Chairman of the Committee on National Emergency Medical Service of the American Medical Association.

G. Dickinson, Director of the Bureau of Economic Research of the American Medical Association. Five thousand questionnaires will be sent to physicians selected at random who remained in civilian practice during the war. While this is but a small sample of those who remained at home, the information thus obtained will furnish important data concerning the experiences of those doctors who carried on while their colleagues were away.

The phenomenal return of over fifty percent of questionnaires sent to doctors in military service, plus that obtained from those in civilian practice, plus the opinion solicited from several hundred officers who held key positions in military and civilian posts, will serve as the basis for the final report to the House of Delegates. Data collected will only become of value if they can ultimately be utilized by responsible authorities which will lead to efficient utilization of the medical resources of the nation should an emergency arise in the future.

A preliminary examination of a number of the statements already turned in demonstrates a total absence of correlated action on the part of the medical services of the armed forces and civilian medical organizations. The urgent demand for large numbers of medical officers brought about an oversupply of medical men in military assignments to the detriment of many civilian areas. The practice in military circles of making assignments with little regard for individual qualifications of officers was widespread. Apparently military authorities were not impressed with the individual capabilities of doctors in particular fields.

While a good many complaints were recorded because of lack of rotation and lack of recognition of ability as demonstrated by military rank, these deficiencies are not so weighty as more basic essentials. With sound overall planning and a coordinated program, the medical needs of the various military services should not offer a difficult challenge to the medical profession.

In time of great national peril the temper of the population is quickened in the direction of the support of military leaders. In a determined and energetic effort to overcome the enemy, the general staff demanded a supply of medical personnel in total disregard of essential civilian needs. It has become apparent that the needs of the civilian population in time of war must be forcefully presented to military leaders. The practice of non-medical departments being held responsible for the selection and assignment of medical personnel has resulted in great waste of talent and produced an oversupply in many categories, with practically a universal shortage of doctors for non-military needs.

NATIONAL SECURITY—PUBLIC RESPONSIBILITY

War unrest today in some nations apparently has almost reached the point of a national neurosis. International relationships are far from wholesome. A state of distrust and suspicion envelopes diplomatic chambers.

Authorities in a position to know have stated that there is no defense against the atomic bomb. W. A. Higginbotham of the Federation of American Scientists, writing in the New York Times Magazine for November 3, 1946, states that "Real control of atomic energy is our only measure of safety." This problem cannot be solved by a few individuals meeting in secret chambers. It is the important concern of every citizen. It will require his participation to bring about international stability as he must participate in the event of national conflict.

NEED FOR COORDINATED MEDICAL PROGRAM

The medical profession needs to have a program that will adequately serve all portions of the population—civilian as well as military. In the event of future catastrophic involvement, the medical problems inherent in such action assume an importance almost co-equal to that of the military aspects. The isolation of military planning at the expense of civilian requirements is not in accord with protection for all groups of the population. Bitter experiences from the last war indicate a definite need for frequent consultations between the military and medical authorities for the establishment of an overall plan of medical service.

The present relatively inferior position of the Surgeon-General of the Army in reference to the general staff is bound to work hardships on the medical service of the Army. It is difficult to conceive that a line officer would have the necessary knowledge

and experience that would fit him to guide the destinies of the Medical Corps. Line officers are responsible for military decisions, the Surgeon-General for medical affairs. The vitality of the military personnel, their physical training, prophylactic treatment, and care when sick or injured require the greatest skill on the part of men trained in the field of medicine.

The appointment of outstanding authorities in the various special fields of medicine to act as consultants to the Surgeon-General is commendable. The real value of such policy depends on the responsiveness of military authorities to the suggestions of the consultants. Experience in the last war indicates that much is still to be accomplished in this direction.

THE NEED FOR A UNIFIED MEDICAL CORPS

The lack of any coordination on the part of the Army and Navy Medical Corps during the last war resulted in numerous unnecessary duplications of effort, and occasionally expensive duplication of construction and equipment. There is definite need for a unified Medical Corps. This organization should be under the direction of a council that would include top ranking representatives of the various armed services and civilian authorities representing the fields of medical education, practice, administration, and research. A medical council of such stature would be held responsible for organizing a program of medical service which would take cognizance of the overall needs of the nation at peace and at war. This would immediately eliminate the competitive bidding for specialists and non-specialists alike. It would remove the possibility of wasteful duplication of buildings. Such a council would offer the general staff information of the utmost value in estimating criteria for physical fitness and setting up a physical training program as the needs would arise. Such a council would be able to advise the President, his Cabinet, and Congress concerning the details of a medical program that would offer adequate scope to young men in the field of medicine. Opportunities for advanced training in the basic sciences and in the specialties would be created that should prove attractive to young men interested in a military medical career.

MILITARY MEDICINE AS A CAREER

As long as the nation finds it necessary to maintain a military force for its protection there will be need for a medical department. As officers are trained for the line so should promising young doctors be trained in the basic medical sciences and special fields of military medicine. Professional opportunities appear infinite. The ordered life is attractive. Associations are pleasant. Financial recognition, while modest, is not probably a major deterrent in keeping young men out of the Medical Corps. Relatively few of the nation's promising young doctors today look upon a career with the armed forces as sufficiently attractive to sign up. Indeed at present documentary evidence suggests that hundreds of young doctors are being held against their desires in positions that offer no opportunities for medical experience or growth. Such a condition should not be permitted to continue, primarily because it will further react against a possibility of winning the support of medical graduates in the direction of a medical military career in the future.

One cannot overemphasize the need for a highly qualified medical department. When the authorities, including members of the general staff and the Bureau of Personnel consider the medical needs of the services in conference with authorities of the medical profession, a major advance will have been attained. The present unrest and widespread dissatisfaction with many minor points of life as a doctor with the armed forces should stimulate authorities to analyze the irritants and the obstacles for winning the confidence of America's young doctors so that errors can be corrected and a loyal Medical Corps of highest calibre can be created.

A valuable suggestion has been made that each year a certain number of scholarships to medical schools should be offered by the government to prospective medical students on the same basis as applicants are now selected for training at West Point and Annapolis. Following their training these young doctors would agree to spend some time on active duty and then, if mutually desirable, to go on inactive status as a member of the Reserve Corps but continue their affiliation with the Medical Corps. Selection of students on the basis of aptitude for

a medical career would uncover a number of highly desirable applicants who otherwise might be eliminated from a life of service in medicine because of the exorbitant financial requirements for the study of medicine as it now exists. Such a program as pointed out by Doctor Harold Diehl of Minnesota would furnish a group of superior young doctors each year for replacement needs in the Medical Corps. They would serve as key men in student bodies to interpret the medical career with the military services in the light of excellent opportunities with the armed forces. The quality of medical talent thus selected would furnish candidates for research programs in military medical fields that would extend scientific knowledge in medical fields peculiar to military action.

In the time of war the nation's population must accept a military dictatorship for its own survival. During peace time however there should be adequate opportunity for conference with the military high command to assure the highest quality of medical service to the armed forces at all times. The absence of a well thought-out program preceding our entrance into the last war created the situation of a military dictatorship which mobilized the medical reserves of the nation with insufficient understanding of the capabilities of modern medicine. Unnecessary wastage resulted from lack of planning. It is high time that a modern program be drawn up in the best interest of medical service for all groups.

MEDICAL ADMINISTRATION

Hospital administration is now a recognized special field in medicine. Medical men with a flare for this kind of executive work, and who possess administrative ability, should find a most attractive career in this rapidly expanding field in governmental service.

The practice of the Navy in using top ranking officers in administrative capacity does not by any means insure a qualified man in an administrative position. Innumerable instances are known where clinicians of outstanding ability have been removed from care of patients to place them in administrative positions for which they were neither by interest or ability well equipped.

The development of a Medical Administrative Corps under a unified military service should eliminate the assignment of clinicians for administrative duties. These two branches of medical service are complementary.

SUPPLY OF DOCTORS

A continuing supply of doctors is of the first importance in time of war. Any threat to the continuance of the supply is a definite threat to medical care for the entire nation. Towards the latter part of the last war an acutely serious shortage of qualified students for medical training developed. Had the war continued this would have brought about a desperate emergency. It resulted from lack of appreciation by Selective Service of the need for doctors. Such a situation should not be permitted to arise in the future. The solution is simple. The selection of qualified students for medical training should be made at periodic intervals by a combined board representing authorities of medical schools whose business it is to estimate the capabilities of aspiring students, in collaboration with representatives of military service who are cognizant of the military needs.

While short cuts in the premedical curriculum may not result in serious deficiencies, the accelerated program for the medical course is open to question. The trainee can absorb just so much. To force data upon an overworked student obviously results in inadequate training. A certain amount of maturation time is required for students to grasp the significance of the instruction they are being given. The fatigue element for both teacher and students results in increasing strain under the accelerated program. Even on the four-year basis the graduate is scarcely equipped to give creditable performance.

Complete subsidization of medical students is neither necessary nor desirable. Many students are quite capable of meeting their responsibilities. For others, financial aid in the form of loans either by the schools or other sources will not create a financial obligation to the government that has in the past reacted unfavorably for the trainees.

More attention to the military aspects of medicine should be a necessary part of the training of all students in peace time. Then, when, and if an emergency should arise they will have had some introduction to the

special aspects of coming experiences. This problem increases in importance when one endeavors to estimate the medical casualties that would result from the widespread use of atomic bombs, biologic and chemical agents, and psychological propaganda in the future. The problems of clothing, housing and mess are relatively minor and can be worked out as the occasion arises.

Our military authorities might with profit examine the practice of Canadian and English military groups in fitting the medical program to the overall need of the nation.

QUALIFICATIONS OF MEDICAL OFFICERS

A Bill recently introduced into the United States Senate known as the "Fulbright-Taft Bill" provides for a Department of Health, Education, and Security. Under this Bill the head of such a Department would have Cabinet status. If, as General George Marshall stated recently, "Health is the great wealth of the nation...," then it would be reasonable to have an authority on health in the President's Cabinet. American medicine has long been interested in endeavors to obtain representation at the Cabinet level.

The medical problems of national security should be studied by the nation's leading authorities in the various fields of medicine and their application to the nation's health. Appropriate recommendations of those qualified to estimate the nation's needs should have adequate recognition and consideration at the highest civilian levels. Yet, in a recent proposed reorganization of the War Department, the Medical Department is placed in charge of a technical advisor to the director of the general staff. Gross inefficiency will arise from such a plan if enacted. Medical science, and the benefits to be derived therefrom, is so complex that it would be impossible for non-medically trained officers to estimate the potentialities involved.

In the interests of having a top-flight unified medical service for all branches of the armed forces, bottlenecks and restrictive regulations need to be eliminated. American medicine has great confidence in the competence of the group of distinguished doctors appointed to the medical advisory committee of the Secretary of War. The profession's sole concern is that the recommendations of this eminently qualified group be translated into effective results. With unification of the services, such a group should be concerned with an overall medical program.

Since the day is passed when any medical officer is qualified to perform any medical duty, the acceptance of this fact will prove a definite step forward. There is need for the creation of pools of medical officers in the various categories. These pools should be set up on the basis of medical specialties rather than military rank. As the need for specialists arises, the particular qualifications of the various men available within the pool should be examined and the man to fit the job should be appointed. This is in sharp contrast to the practice of the recent war in which too many doctors were assigned according to rank with relatively little attention paid to their medical qualifications.

THE CHANGING CHARACTER OF WARFARE

Towards the close of the last war two relatively small atom bombs were detonated. The results of these demonstrations produced an effect on international relationships that was far reaching. Reports are current that really large atom bombs can be produced that will wipe out entire metropolitan communities.

Biologic warfare has been widely commented on in the national periodicals. Life Magazine, November 18, 1946, states that "biological warfare using various products of disease may be as devastating as the use of atomic energy and, indeed, as troublesome to combat." From other sources, chemical agents more deadly than the cyanides are available to equal the destructiveness of atomic energy and biologic products. Psychologic and propaganda methods which create unrest and division throughout the nation's population offer another major destructive method.

In the Chicago Sun of December 9, 1946 there is a statement by Griffing Bancroft that atomic power makes battleships and airplane carriers obsolete. Naval authorities are of the opinion that mechanization of aviation makes the airplane pilot obsolete. In the opinion of naval military leaders the use of mighty underwater craft, which are capable of cruising for months

under the surface, is a necessity. These craft would come to the surface for the purpose of loosing rockets or depositing troops on enemy shores. In the opinion of many competent authorities the large battleship navy is a thing of the past.

Army military authorities are considering methods that will be utilized in the next "super blitz" emergency.

In any future war the metropolitan communities wherein civilian populations are concentrated will be the major objectives of hostile powers.

PRACTICAL PLANS FOR NATIONAL DEFENSE

In a recent editorial in the New York Times, December 1, 1946, New York State was described as the first to set up a community program which might be activated in the event of an assault on our nation. General Hugh Drum publicly stated that "organization by New York State of the first military body in history to defend the home front against an atom bomb attack is not designed to make anybody's flesh creep. No assault by fission missiles is anticipated in the near future. But if it ever comes to such a populous community, commonsense tells us it would be catastrophic. The State War Disaster Military Corps is therefore a sober provision of forehandedness which other communities would do well to consider and follow. The State War Disaster Military Corps is only part of a general plan for the expansion of the National Guard to enlarge our federal defense forces. In the beginning it will be strictly a state responsibility. But, in view of its purpose, it is the most striking feature of the larger plan. Essentially it is an effort to provide a trained nucleus to step in and restore discipline and order in a civilian population demoralized by sudden disaster. Obviously no civilian defense corps resembling those we had in the last war could hope to handle such widespread disorganization of normal life as a single atom bomb would cause. So far the United States has expressed little interest in such a disaster force. New York State is pioneering in the field. But it is already high time to take practical thought of the terrible new weapons science has developed and to consider their use by other hands than ours. The great cities of this State will remain inviting targets for swift attack. The State War Disaster Military Corps should drive into the public consciousness the inescapable fact that humanity, for good or ill, has passed into the atomic age. While mankind is still struggling to work out some means of curbing its destructiveness we must prepare to meet it."

National security requires the participation of the adult and youthful population of the nation for its common defense. In the face of weapons capable of mass community destruction, the basis of neutralizing enemy assault must be by relatively small technical groups of experts capable of highly mobile and flexible methods of neutralization and retaliation.

It is difficult to visualize the use of large troop formations as a wartime instrument in the atomic area. Had an atom bomb been dropped on Iwo Jima the priceless lives of 5,000 American heroes would have been saved. The day of individual combat and beach assaults has passed. Military troops in the future will find their probable utilization as occupation forces after the storm. With this evolutionary development in the science of international conflict it is difficult to evaluate the justification for a national program of compulsory military training.

There can be no doubt that military training of the nation's youth in the forms of discipline, physical training, and essentials of team-work are beneficial. A program for training in these essentials might readily be incorporated in the secondary schools and colleges of the nation without disrupting other essentials in the national educational program.

TROOP STRENGTH VS. MEDICAL NEEDS

Attempts to supply medical personnel to troops on the basis of 6.5 per thousand proved wholly unsatisfactory during the last war. The estimate for the medical needs of armies in battle and in the rear areas should be entirely on the basis of calculated casualties. Military and medical authorities rapidly became competent in predicting the number of casualties that would result previous to engagements in the last war. It would have been relatively easy to have medical units available in rear areas and taken by air to areas where needed. The maintenance of inflexible tables of organization was a prominent feature in wastage of doctor supply. Excessive reverence for

rigid tables of organization tied up many valuable medical officers who, when not needed for active medical duties with the armed services, might well have been utilized in relieving the drastic shortages in many civilian communities. Fewer civilian doctors would have had coronary arteries blocked had such a program been set up.

In the light of the fantastic developments in atomic and biologic warfare, the use of highly toxic chemical agents, and the elaborately designed measures of psychologic assault, the type of casualties to be expected can be readily estimated. There will be relatively less need for field medical units, beach landing parties, and mass troop movements.

There will be relatively greater need for adequate medical personnel and equipment assigned to civilian population centers. In the light of modern weapons which are capable of destroying large concentrations of troops and civilians alike, it can safely be predicted that the day of the rifle, machine gun, and indeed surface battleships is drawing to a close. Military masterminds behind the scenes realize this. It is high time the nation as a whole faces such a possibility. It is too much to expect that the world has seen its last war.

It can safely be estimated that the next war will not last long, that there will be a tremendous number of casualties, and probably civilian casualties will be greater in number than troop casualties. Provision for medical care should be made accordingly.

THE MEDICAL RESERVE CORPS

Previous to Pearl Harbor the Medical Corps of the Army and Navy were operating with a skeleton crew. The rapid expansion at the beginning of hostilities mobilized the medical reserves so that probably over ninety per cent of the actual work was performed by reserve officers. While some representation for reserve medical officers existed within the offices of the Surgeons-General, many problems arose which indicated the need for a more intimate understanding of the problems of the reserves by those who determined the policies of the Corps.

Coercion, veiled threats of unsatisfactory assignments, unfulfilled verbal promises, and other unwholesome attempts for undue influencing of younger medical officers against their better judgment should have no place in the activities of the medical departments of the armed forces.

National security requires that every doctor should be available for national service in time of emergency. Reserve medical units at the various levels in administrative, clinical, and research fields should be organized during peace time and should be kept continually in touch with the activities of the service medical corps. Insofar as possible the division between the career officers and reserves should be minimized. This is especially true in the field of medical education and research.

PROMOTION IN THE MEDICAL CORPS

The capacity, training, and experience of a doctor should represent the criteria for determination of his military rank. As an officer gains in knowledge and value professionally, these facts should serve as the basis for advancement. Medical proficiency and rank should go hand in hand. Certification in the various specialties was recognized during the last war. Unfortunately well qualified clinicians by virtue of age and years of experience were often removed from clinical duties and given administrative assignments purely on the basis of military rank. This problem should offer little difficulty when properly recognized by the policy-making board responsible for the creation of an efficient and modern Medical Corps.

Doctors in special fields, when maintained in their chosen work, should have expanding opportunities for extending the frontiers of medical science. In this way the medical service of the armed forces would soon have research programs coequal in excellence to that of civilian organizations. This principle should be encouraged by adequate recognition when rank is assigned.

CONCLUSION

In conclusion the principle medical needs for national security may be summarized as follows:

1. An overall medical program for all groups of the population.
2. A Secretary of Health in the President's Cabinet.

3. A medical council with representatives from the medical schools, professional organizations and military officials.

4. Guarantee of a continuing supply of medical officers.

5. Appointment of doctors on the basis of ability rather than military rank.

6. The creation of opportunities in the medical corps for graduate training and research.

7. Organization of an energetic Medical Reserve Corps.

If these principles are utilized in the formulation of the national policy for health and medical care the benefits of modern medical science will be extended to the entire population of our great land.

NEUROSURGICAL RELIEF OF INTRACTABLE PAIN

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Intractable pain presents itself frequently as a serious therapeutic problem to every physician. It may be defined as any pain that requires the constant administration of sedatives and hypnotic drugs, or narcotics, without any continued ameliorating effect.

All patients with this type of pain should be given adequate conservative treatment. There have been many time-tested drugs as well as an occasional new medication which gives relief from moderate protracted pain. During the period of relief afforded by these agents, nature sometimes effects a relative cure so that occasionally these less drastic means constitute adequate therapy as well as actual dulling of the pain. Drugs in the form of codeine, morphine, dilaudid, demerol and snake venom are often sufficient to make these unfortunates comfortable if the life expectancy is not extended. Too frequently, however, this is the only method considered and is carried beyond usefulness. Many patients with comparatively long life expectancies receive opiates until they are confirmed addicts and become mental casualties. When this point is reached it is useless to consider surgery for relief of the pain. When a patient has reached the point of addiction because of the pain, the removal of the pain no longer constitutes an excuse for the continuance of the drug and the patient's mental outlook becomes hopeless. Marked mental depression and suicidal tendencies are then encountered. It is for this reason that the prolonged use of opium derivatives is condemned unless life expectancy is short.

The interruption of afferent nerve pathways at selected points, if properly carried out, will give complete relief of pain. Standard neurosurgical methods may be conveniently classified under six general headings, as outlined below:

1. Injection of novocaine, alcohol and occasionally ammonium sulfate (Pitcher plant extract). (a.) Local. (b.) Paravertebral (sympathetic). (c.) Caudal anesthesia (extradural sacral block). (d.) Intrathecal alcohol.
2. Posterior rhizotomy.
3. Chordotomy.
4. Mesencephalic tractotomy.
5. Resection of the postcentral gyrus.
6. Sympathectomy.

Following the work of LeRiche, and later Livingston, *local infiltration* of a painful area sometimes gives more than temporary relief. This is particularly true, as Homan has shown, if the area involved is painful because of afferent sympathetic impulses. In such cases Homan would accomplish with novocaine the equivalent of a periarterial sympathectomy. These procedures, however, have limited applicability and have been largely superseded by paravertebral novocaine blocks.

The technique of a *paravertebral novocaine block* has been adequately described by Smithwick and White. White has been able to demonstrate, by means of x-rays taken with the needles in place, and by the injection of thorotrast through these needles, that he can permanently interrupt the sympathetic chain by the injection of

a few drops of absolute alcohol placed with great accuracy against the ganglion. *Paravertebral alcohol injections,* however, are accomplished at the expense of great experience and considerable training, since an area of necrosis, caused by the alcohol, situated next to the aorta or the vena cava might prove disastrous. Use of novocaine, however, has a wide range of applications and the technique is fairly simple. The main value of paravertebral novocaine lies in the fact that one may then make a decision as to the value of a sympathectomy which would give permanent relief if the novocaine gives temporary relief. These procedures have been found to have an ever-widening range of usefulness and have superseded chordotomy in many cases.

The technique of paravertebral sympathetic block consists of the insertion of three long spinal needles of approximately 22-gauge with the points placed at the anterolateral surface of the body of the selected vertebra. This is accomplished by inserting, through a novocaine wheel, two-fingers breadth from the midline on the affected side, a spinal needle down to the transverse process. The spinal needle is then withdrawn so that it is possible to slide under the transverse process and incline the needle toward the midline. At a further depth of 2½ cm. the point of the needle should then strike bone and it can be assumed that the point of needle is in proximity to the sympathetic chain or the sympathetic ganglion. Lumbar sympathetic blocks should include the ganglia of L1, 2 and 3. It is the authors' practice to aspirate then carefully and, if the needle is free, gently force 5 cc. of one per cent novocaine without added adrenaline through each needle. The infiltration of tissue by the use of this fairly large amount and the area covered by the three needles insures an effective block.

Cervicodorsal sympathetic block is accomplished in the same fashion except that the needles are inserted under the transverse processes of D1, 2 and 3 so that the stellate ganglion is anesthetized, as well as the dorsal chain.

It can be easily determined if the block has been effective. In the case of a cervicodorsal sympathetic block, the patient acquires rapidly a Horner's syndrome, wherein the pupil of the ipsolateral eye becomes narrowed, the palpebral fissure smaller and the ipsolateral side of the face becomes dry and warm. Lumbar sympathetic block may be assumed to be effective if the skin temperature on the affected side is increased, or if the patient says that the leg feels warmer. It will also be noted that there is no sweating on the anesthetized side. Sympathetic afferent pain will disappear at the same time these various phenomena are noted. It may be necessary to repeat this procedure more than several times, depending upon the pathology present and effect desired.

The use of *caudal novocaine anesthesia,* or sacral block, is becoming less useful since the cases of idiopathic sciatic neuritis are becoming less frequent. Unilateral idiopathic sciatica almost invariably means mechanical pressure upon a nerve root whether this be a protruded intervertebral disc or a cauda equina tumor or an arthritic protuberance. However, in those cases of true sciatic neuritis, caudal anesthesia sometimes gives dramatic relief. It has been found, however, that it is not necessary to use novocaine for this particular procedure, but that the nerve root may be stretched and the adhesions possibly broken down by the injection of ordinary saline solution.

The use of *intrathecal alcohol* fills a decided need in the treatment of intractable pain and finds its field of usefulness in relief of pain caused by malignancy. Alcohol has an affinity for the posterior roots which, of course, carry afferent pain impulses. This is probably true only because alcohol rises since it has a lesser specific gravity than spinal fluid. With the patient in a prone position, therefore, the alcohol would rise to encompass the posterior root. Its value lies in the treatment of bilateral pain, such as that caused by carcinoma of the bladder, rectum and sometimes of the prostate. Carcinoma of the prostate may metastasize so rapidly that the treatment of intractable pain may be the first problem encountered. The technique of administration of intrathecal alcohol is a fairly simple one, but occasionally the after effects are such that it is best left to the responsibility of a specialist. Depending upon the level of the pain, the spinal cord segment particularly involved is

elevated by means of a sand bag. Three spinal puncture needles are inserted into the subarachnoid space by means of the closed puncture method so that the spinal cord will not be injured. Four-tenths of one cubic centimeter of absolute alcohol is then injected slowly into each needle. Thus, the total of 1.2 cubic centimeters of absolute alcohol is infiltrated about a raised level of the spinal cord from which the three involved neural segments emanate. The posterior roots are bathed with alcohol and, because they have no neurilemmal sheath, their fibers are destroyed. This is a postganglionic destruction and is, therefore, permanent. The dangers inherent in the use of absolute alcohol in the subarachnoid space are those of loss of bladder control, and occasional paresis of an extremity.

Posterior rhizotomy, for the relief of either somatic or visceral pain, has a wide range of usefulness within certain limitations, and occupies a definite place in the neurosurgeon's armamentarium. Its applicability, however, is decreasing since painful areas may outgrow the boundaries of the areas delimited by the severed posterior roots. Posterior rhizotomy in the cervical region is impractical because of the great disability which results. This disability is manifested by incapacitating anesthesia of the hand and actual atrophy of the muscle group. Pain of the upper extremity, if it cannot be controlled by a sympathectomy, is best controlled by the same means used to give relief of pain in the shoulder girdle or neck. This will be described under the paragraph devoted to medullary tractotomy.

Posterior rhizotomy of the roots in the cauda equina has never been a particularly satisfactory procedure, but it does have a limited usefulness where neuritis is caused by an irremovable, constant pressure on the nerve roots such as a large arthritic spur or ridge.

The main value of posterior rhizotomy lies in the treatment of radiculitis involving dermatomes of the trunk. It may be caused by old fractures, arthritis, postherpetic neuralgia and allied disorders.

Meralgia paraesthetica, that peculiar condition exemplified by a painful anesthetic zone limited to the cutaneous representation of the lateral femoral cutaneous nerve, has, in the authors' experience, been best eradicated by means of a posterior rhizotomy rather than a bungling attempt to find the lateral femoral cutaneous nerve in the thigh as it passes through the fascia lata.

Subclinical arthritides and pariarthritides, as well as the long recognized facet syndrome, may cause intractable radiculitis which necessitates the fairly simple procedure of posterior rhizotomy.

Posterior rhizotomy of the fifth, or trigeminal, nerve is the accepted method of treatment of *tic douloureux* or *trigeminal neuralgia*. Glossopharyngeal, or ninth nerve, neuralgia simulates the sharp, shooting lancinating paroxysmal type of pain seen in trigeminal neuralgia and this condition as well can be permanently eradicated by intracranial rhizotomy of the ninth nerve. Geniculate neuralgia, a rather rare disorder, characterized by lancinating, paroxysmal pain in the external canal of the ear, can be done away with by intracranial section of the nerve of Wrisberg or the nerve intermedius. These procedures in qualified hands are comparatively safe and simple.

It seems rational to precede the treatment of carcinoma of the tongue, as well as other malignant disorders of the face and pharynx, by relief of pain so that various otherwise painful therapies may be accomplished in the heroic fashion necessary for the control of the disease. Pain in this area can be controlled by a ninth nerve section on the affected side, followed by injection or section of the ipsolateral trigeminal nerve.

It should be emphasized that the pain of tic douloureux and glossopharyngeal neuralgia, or for that matter most intractable severe pains about the head and neck, can be relieved by an operative procedure which, in competent hands, carries no more danger than a tonsillectomy. The sharp shooting, lancinating pain characteristic of either of the major neuralgias can be easily recognized and proper advice given. Temporary relief may be obtained by alcohol injection of the peripheral divisions of the fifth nerve. This is, however, only temporary and the pain recurs with decreasing intervals between attacks so that eventually a posterior rhizotomy of the fifth nerve

becomes necessary, Th technique of posterior rhizotomy is a complicated, delicate one and should be left for the trained neurosurgeon. It consists of a laminectomy over the proper spinal segment, opening of the dura mater and the arachnoid and sectioning of the posterior roots between the ganglion and the spinal cord of the affected radix. Posterior rhizotomy for the relief of trigeminal or glossopharyngeal pain constitutes an intracranial operative procedure which is highly technical and which should be left for the neurosurgeon.

The main value of *chordotomy* lies in the treatment of pain caused by malignancy and should be reserved for that pain which is intractable and severe. Chordotomy should not be considered as a mutilating operation, yet, since it is a permanent obliteration of afferent impulses, the decision should be weighed thoughtfully and mature judgment should be brought to bear upon the problem. The procedure is not formidable, carries a very low mortality rate and is the operation of choice in the control of pain due to malignancy where the patient's life expectancy exceeds three months. It consists of sectioning the lateral spinothalamic tract in the anterolateral portion of the spinal cord, through a laminectomy, and with a permanent loss of afferent pain and temperature sensation of the contralateral side of the body beginning two segments below the level of the operation.

Mesencephalic tractotomy has been described in detail by Schwartz and Walker. This is a highly technical procedure which carries somewhat higher mortality than a simple chordotomy and which is reserved for intractable pain of the neck and shoulder girdle and sometimes of the upper extremities. It consists of severing the spinothalamic tract in the midbrain or in the medulla. While the procedure has become popular amongst qualified neurosurgeons, it has not as yet attained widespread use, probably due to the detailed knowledge of anatomy, physiology and technique that is required.

Resection of the postcentral gyrus of the cortex of the brain has a limited field of usefulness but gives excellent results in two notoriously resistant conditions, that is, phantom limb pain and postherpetic neuralgia. It should be reserved as the final procedure to be considered for the relief of pain when other methods have failed. The actual technique of the operation in the hands of a qualified neurosurgeon is fairly simple and the mortality rate is low. It is, however, to be thought of as the last resort in the hierarchy of the treatment of intractable pain. It is well to realize, however, that phantom limb pain and postherpetic neuralgia seldom respond to any other treatment.

The value of *sympathectomy* in the treatment of causalgia and other sympathetic afferent pain cannot be overestimated. The question as to its applicability to a certain case can be determined by the previously described procedure of paravertebral novocaine injections. It should be remembered that dorsolumbar sympathectomy for the relief of essential hypertension almost invariably gives gratifying relief of the severe headaches and other symptoms of the hypertension. The results of this procedure on properly selected cases are gratifying in so far as the actual reduction of the blood pressure is concerned, but do not fall within the scope of this presentation. Painful extremities due to thromboangiitis obliterans or even diabetic arteriosclerosis may be relieved and at times the limbs may be saved by the increase in vascularity of the extremity. Causalgia and erythromelalgia are notoriously susceptible, in so far as the relief of pain and increased vascularity to sympathectomy.

Persistent incapacitating anthritides, particularly hypertrophic spondylitis with the resulting incapacity and pain, may sometimes be greatly benefited by the judicious use of sympathectomy.

Various entities considered above might better be given a more complete description. *Causalgia*, for example, is considered to be a clinical entity characterized by a dull, constant, burning pain which may be precipitated by exposure to cold. It is manifested by patchy areas of hyperesthesia with a purplish discoloration of the skin which may, when severe, fade into a dead white. The involved member may appear edematous. This apparent tissue response is due to impulses traveling along afferent sympathetic fibers leading from the damaged tissue. The reflex is thereby set up wherein efferent impulses cause further

vasoconstriction and consequent further damage to local tissues, and increasing the afferent impulses of the pain. Treatment is directed at interruption of this reflex sympathetic arc by severing the gray and white rami and the sympathetic chain itself.

Raynaud's disease usually involves the upper extremities in women. It is characterized by the color change and the decreased blood flow of the upper extremities, usually precipitated by exposure to cold. Both of these conditions respond nicely to sympathectomy.

Beurger's disease, or thromboangiitis obliterans, not only causes a thickened arterial wall microscopically but has a vasospastic component. As a consequence of the obliterative process on the intima of the blood vessel this disease is not as amenable to sympathectomy as the two conditions described above. Interrupting the reflex arc, however, by sympathectomy will frequently relieve the pain, cause the patient to be much more comfortable, and may frequently save the extremity from amputation.

Phantom limb pain follows amputation of an extremity and is usually described by the patient as a cramp of the missing fingers or toes. It is very severe and distressing and has been known to lead to suicide. This condition is very difficult to treat and constitutes one of the major problems of the neurosurgeon. By the time the patient reaches the neurosurgeon he has usually had the *neuroma* or so-called neuroma *injected or removed* many times. It has been found that paravertebral novocaine injections may give relief, and if this is so then a sympathectomy should be done. If the *sympathectomy* does not relieve the pain or if the *paravertebral block* does not indicate that it would, a *chordotomy* is then performed which many times does give complete freedom from pain, although the phantom limb sensation may be present. *Resection of the postcentral gyrus* is the next logical step in the treatment of phantom limb pain if no relief has been obtained by chordotomy.

The pain found in *brachial neuralgia* can be broken down for all practical purposes, excluding the obvious arthritides, as well as occasional bursitis and myositis, into the neuritis caused by a cervical rib or an anterior scalene syndrome as differentiated from the pain caused by a cervical herniated intervertebral disc. Both are due to mechanical pressure upon nerves or nerve roots and the surgical procedures for the relief of each are fairly simple and carry little or no mortality.

The relief of pain caused by a *lumbar protruded intervertebral disc* is, of course, notorious and is only an example of mechanical mononeuritis which may be relieved by surgical removal of the offending protrusion.

There is a condition of recent interest which will be reported at a later date by one of us concerned with a *variant of migraine headache*. This is a clinical entity which has been recognized by unilateral pain which radiates over the temporal region into or behind the eyes. The eye may become injected and may tear. The pain may be sharp and shooting but a constant, dull headache persists. There is no aura or scotomata and there is usually no accompanying nausea. The pain also may be described as radiating up over the occiput on the same side. It is believed that this pain is largely due to involvement of the cervical plexus as it leaves the cervical vertebral column. This would easily explain the occipital pain and the relief occasionally found by the use of a head halter and traction. This does not, however, adequately explain the pain which is conducted along the sympathetic fibers coursing with the temporal arteries. It has been found that section of the temporal artery will give dramatic relief of this syndrome. This particular syndrome and its various components will be described in a later more complete paper, but it is of interest to note that this seemingly intractable pain can be relieved by a comparatively simple surgical procedure.

In conclusion then it is desirous to emphasize that one of the main responsibilities of the neurologic surgeon lies in the relief of intractable pain. It is generally considered that pain anywhere in the body should be amenable to any one or more of the surgical procedures described above. It is also emphasized that these procedures do not carry a high mortality rate, that they are performed easily by a trained neurosurgeon and that harmful sequelae or dis-

tasteful residuals are not to be expected. It is further emphasized that such relief of pain should be consummated before the unfortunate patient becomes addicted to a habit forming drug, such as one of the opium derivatives. It is strongly urged that patients with a life expectancy exceeding three months, suffering from inoperable malignancy, be offered the benefit of a comfortable life free from pain and that such comfort may be derived by the relatively innocuous procedures described above.

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Pulmonary Resection—In 25 to 30 per cent of cases of pulmonary carcinoma, it is impossible to obtain specimens for pathologic examination. In those cases a diagnosis must be made on the basis of the clinical and roentgenologic observations. I believe very strongly that no patient should be denied the benefit of thoracic exploration if the history, clinical examination, and roentgenologic examination suggest the presence of carcinoma of the lung. In such cases, exploratory thoracotomy is a justified procedure, since there is no other means of establishing an early diagnosis of the lesion and carrying out treatment at an opportune time. There is no more risk involved in exploratory thoracotomy than there is in exploratory laparotomy, and there should be no hesitation to recommend an exploratory operation in cases of suspected carcinoma of the lung.

Our experience has shown conclusively that radiation therapy is not effective for carcinoma of the lung. Radical resection of the lung and the regional lymph nodes is the only treatment. Pneumonectomy for carcinoma of the lung is based on the same principle as that of surgical treatment of carcinoma in other sites, that is, excision of the lesion and the involved regional lymph nodes. Obviously, many special problems attend the removal of an organ as vital as the human lung. However, these problems have been overcome to a great extent.

Since carcinoma of the lungs occurs, for the most part, in persons who are middle aged and older, careful evaluation of their general physical condition must be made before operation is advised. The patient should be in good general condition; the heart and opposite lung should be essentially normal. There should be roentgenographic or bronchoscopic evidence of a pulmonary lesion and every attempt should be made to rule out other pulmonary conditions, such as abscess, bronchiectasis, and tuberculosis. Age in itself should not necessarily contraindicate surgical intervention.—*Clagett, Texas State J. Med., April* '47.

Actinomycosis—The clinical types of the disease are: (1) cervicofacial, (2) abdominal, (3) thoracic, and (4) cutaneous or systemic. According to various references the cervicofacial region constitutes 50 to 60 per cent of the cases, the abdominal 20 per cent, the thoracic 15 per cent, and the cutaneous and systemic forms 5 per cent.

The clinical symptoms of actinomycosis vary somewhat, depending upon the region of the body involved.

In cervicofacial actinomycosis the infected area becomes indurated, extending beyond the area of inflammation, and the overlying skin has a dark red or purplish color and a lumpy uneven surface. As the infection spreads, multiple sinus tracts appear, and with internal extension the bones of the skull and even the meninges may be involved. Trismus develops when the muscles of mastication are involved. The lymph nodes of the neck are usually not involved and pain is not a prominent feature. The patient's general health remains good as long as the disease remains localized.

In thoracic actinomycosis, the symptoms are usually cough, sputum, increasing dyspnea, fever, weight loss, night sweats, pallor, and emaciation. The sputum may contain blood and fatal hemoptysis may occur. Pleural pains and effusions are not infrequent. After the disease reaches the pleura it usually involves the thoracic wall, extending through the subcutaneous tissue, and produces local areas of induration with suppurating foci and sinus formation. Cornell and Shookhoff, quoting Ashford, state that in thoracic actinomycosis perforation of the chest wall occurs in more than 80 per cent of cases. From the thoracic foci there may be extension to the mediastinum, ecophagus, and pericardium.

In abdominal actinomycosis, the earliest sign usually is the development of an indistinct, irregular mass in the ileocecal region, generally not painful and without characteristic features. It may or may not be accompanied by fever, chills, night sweats, intestinal colic, and vomiting.—*Hollis and Hargrove, New Orleans M. and S. J., April* '47.

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INFECTIVE HEPATITIS

"Infective hepatitis has been known chiefly as a disease of war, but it has been described frequently during the past three decades as a sporadic, endemic and epidemic disease occurring in civilian populations all over the world. During World War II an unprecedented pandemic of infective hepatitis occurred, and the increasing prevalence of this serious disorder in civilian practice makes it imperative to utilize the newer concepts of the disease...

"It is impossible, in the present state of knowledge, to designate the disease by an accurate nomenclature; in this paper infective hepatitis is used as a general term to include the sporadic and epidemic form (infectious hepatitis) and the parenterally transmitted disorder (homologous serum hepatitis). In view of the modern concept of the pathology of the disease, the term 'catarrhal jaundice' should be discarded, not only because it is well established that many cases of infective hepatitis occur without jaundice but also because catarrhal jaundice has become synonymous with a benign and self-limited process, whereas there is increasing evidence infective hepatitis is a serious and often treacherous disease."

Thus does Maloney[1] begin his discussion of this disease which is increasingly claiming the attention of both clinicians and research workers. The Boston investigator goes on to tell us that, despite intensive studies both here and abroad, knowledge concerning infective hepatitis is still deficient, especially in the etiologic and immunologic aspects of the disease.

"Most investigators believe that serum hepatitis and epidemic hepatitis cannot be differentiated pathologically or clinically...

"The disease typically has preicteric, icteric and convalescent stages, although some patients have jaundice as the initial complaint and in others icterus may not develop.

"The preicteric phase is usually of five to seven days' duration, and there is frequently an acute febrile onset accompanied by a chilly feeling, headache, malaise, anorexia, nausea and occasionally vomiting. Sporadic cases encountered in civilian practice may have an afebrile and insidious onset, resembling in this respect many cases of serum hepatitis.

"Physical signs are few, hepatic tenderness may be present, but enlargement and tenderness of the liver are likelier to occur just before or with the onset of jaundice. A most important diagnostic point is the appearance of bile-stained urine, which is frequently observed by the patient before jaundice develops.

"The icteric phase averages two to four weeks, and when jaundice appears fever subsides and the gastrointestinal complaints are apt to become prominent. Anorexia, which is peculiarly severe, nausea and less often vomiting, epigastric discomfort and pain in the region of the liver . . . are frequent and significant complaints. On careful examination the liver is often found to be enlarged and tender, and the spleen may be palpable. Jaundice as a general rule reaches a peak in about a week and begins to fade fairly rapidly. Soon after jaundice appears there is usually a remarkable amelioration of complaints, return of appetite and disappearance of the feeling of malaise. Abdominal discomfort, lassitude and other symptoms may persist, but liver

1. Maloney, William C.: Infective Hepatitis, New England J. Med. 235: 816 (Dec. 5) 1946.

tenderness tends to subside and the liver gradually returns to normal size.

"In some cases icterus becomes progressively worse, a marked fetor hepaticus is noted and the patient becomes restless, irritable and delirious. Coma, often with hemorrhagic manifestations, develops, and death from acute hepatic necrosis ensues."

The author goes on to tell us that "there is no specific therapy for infective hepatitis, but a program of adequate bed rest and proper diet is effective in the management of the disease.

"Acute infective hepatitis is becoming more prevalent in civilian practice. It carries with it a serious morbidity and is probably an antecedent factor in chronic liver damage and cirrhosis more frequently than is realized. The disease is treacherous and, at times, fatal, especially in old and debilitated patients."

It is well that Maloney has called our attention to this disease which, in the past, has been all too often overlooked. And the profession will do well to bear his admonitions in mind. For, even though no specific treatment is as yet available, prompt diagnosis and adequate therapy will certainly accomplish much.

TRANSACTIONS OF THE ASSOCIATION

1947 SESSION

PART I

TRANSACTIONS OF THE CENTENNIAL MEETING OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA HELD AT BIRMINGHAM, APRIL 14-16, 1947

First Day, Monday, April 14

The Centennial Meeting of the Medical Association of the State of Alabama convened in the ballroom of the Thomas Jefferson Hotel, Birmingham, and was called to order at 10:00 A. M. by the President, Dr. C. A. Grote, of Huntsville.

Invocation was offered by Rev. Marvin A. Franklin, D. D., Pastor of Highlands Methodist Church.

Addresses of welcome were delivered by Hon. Charles Harrison of the Jefferson County Board of Commissioners; and Dr. W. S. Littlejohn, President of the host Society, whose address follows:

Dr. Grote, Members of the State Medical Association, Visitors and Distinguished Guests:

It is with a pardonable pride that I am permitted the honor of welcoming you to Birmingham and Jefferson County, Alabama.

I am sure that nowhere in Alabama could one meet with such a distinguished group. The average doctor does not realize that in this group is represented a degree of culture, education and intellectual leadership much above that which could be gathered in any other business or professional organization. Let us not sell the medical profession short.

There is a grave danger that in our preoccupation with the welfare of our patients we may neglect to see to our own welfare and the best interests of the medical profession as a whole. Individually, as personal physicians, and as a scientific group, we can and should wield a tremendous influence in our various communities. Let us be careful lest other influences come in; and, because of our indifference, take from our hands the well-being and health of those who are normally our charges, our friends and our responsibility. Regimented, social or political medicine can never replace the individual and personal position of the family physician; but it may easily usurp our prerogatives. We have a responsibility to our patients to see that this shall not come to pass.

The Jefferson County Medical Society is one of the largest and one of the best County Medical Societies in the South. While you are here as our guests, our medical facilities and our hospitality are yours. Call on us in anyway that we may make your visit more profitable or more pleasant.

In behalf of the more than 500 members of the Jefferson County Medical Society, I cordially welcome you.

The next order of business being the Message of the President, Dr. Grote was presented to the Association by Dr. B. W. McNease, Vice-President of the Northwestern Division, who, in his introduction, said:

On this, the one hundredth anniversary of our State Medical Association's founding, it is eminently fitting that we should honor one who has contributed in no small measure toward the Association's success, both scientifically and in the field of public relations. That the man whom we have chosen for the presidency fulfills these requirements, there is no doubt. Consult the record.

The establishment of full-time health officerships in Alabama dates from 1914, when, in

Walker County, the first was started by Dr. Grote. This was one of the first three or four in the entire nation. From this beginning, and largely through Dr. Grote's efforts, the movement spread to the extent that before the beginning of World War II every county in the State had a full-time health officer.

Were there no other meritorious service than this rendered the Association, and the State, he is justly due our plaudits.

The President's Message

Members of the Association:

In the very beginning of this message I must tell you how much you have honored me and how deep my appreciation of that honor has been. As unworthy as I have felt to be your President, that very sense of unworthiness has acted as a stimulus. I, therefore, have endeavored to act in such a way, especially during this year, as to reflect honor and credit upon our Association. The Medical Association of the State of Alabama has a very high standing in this State. In fact, I have found that no other organization has a higher standing. For exactly one hundred years the leaders of our profession have through this Association rendered superb services to the public, to the State, and to our profession.

The record of the work and the sacrifices those old doctors rendered our Association during the century reads as a challenge to us—how they traveled days and nights by stage, by horseback, by boat, and later by train to attend one of these meetings; how they fought the quacks and imposters and slowly but surely raised the standards of medical practice in our State; how Josiah Nott founded the first medical school; and how Jerome Cochran conceived a blueprint for the State Medical Association. I must not deal further in the history of this Association, as interesting as it is. I shall have to leave that to others on this program. But I must say that, as to this rich heritage, we, the members of the Medical Association of the State of Alabama. in beginning another one hundred years of activity, have a responsibility that is not less. With the changed conditions in every walk of life, with the great advances in medical science and public health, with social minded laymen and politicians seeking to seize control of our profession, I repeat—our responsibility is not less. Indeed I think we must have a genuine revival of interest in our Association. It is a real challenge, and only by organized, intelligent, and well directed effort can we keep intact our glorious heritage. So, it is with our past in mind we must face the realities of the present and look with confidence to the future.

As President, I wish to report to you that I have made the following appointments during the year:

Dr. John Simpson, of Birmingham, to the State Board of Censors to succeed Dr. M. Y. Dabney, resigned.

Dr. Alfred Walker to succeed himself as delegate to the American Medical Association, with Dr. G. O. Segrest as alternate.

Dr. Hill McCaslan, of Union Springs, to succeed Dr. M. S. Davie, deceased, as a member of the State Board of Censors.

Dr. B. W. McNease to act as Chairman of the Postwar Planning Commission to succeed Dr. Davie.

Dr. Edgar Givhan to succeed Dr. Banks Robertson, resigned, as a member of the Postwar Planning Commission.

Dr. E. L. Gibson to succeed Dr. McCaslan as Vice-President of the Southeastern Division of the State Medical Association.

As your President, I have traveled from one end of the State to the other in the interest of our Association. I have made addresses not only to doctors but to many other groups, with special emphasis on our relations as a group to the public. We have endeavored to cooperate with every other group, and there are many who have interested themselves in the numerous phases of public health and medical care. I wish here to express my appreciation of the excellent work being done by the committees of our Association. The Postwar Planning Commission has continued to do outstanding work, although the illness and untimely death of our beloved and revered Chairman, Dr. Davie, curtailed the activities of the Commission. The Committee on Cancer Control, under the splendid leadership of Dr. J. P. Chapman, has continued to function at top speed, and I invite your special interest in their detailed reports. All other standing committees have been active during the year, and their reports will be heard with much interest. I wish to express my appreciation of Dr. Douglas Cannon as our untiring and efficient Secretary. The State Board of Censors has given me its genuine cooperation for which I have been grateful.

I wish to call attention to the activities of Dr. J. Paul Jones in the interest of rural medical care. He has probably given more of his time and thought to this than any other member of our Association—attending meetings in every part of the United States on this important problem. He does not pretend to have all the answers, but he knows the problems of rural medical care. Dr. B. W. McNease and I attended a two-day conference of the National Physicians Committee in St. Louis during early September. We believe this political activity committee has rendered a wonderful service to the medical profession as a whole and deserves our continued support.

Dr. C. N. Carraway and Dr. Douglas Cannon were appointed as a special committee to attend a meeting in West Virginia studying contract practice as it pertains to coal mining and organized labor. This probably will develop into one of our most trying problems in the near future. It has far reaching potentialities and must have our studied consideration. If members of this Association should desire to make contracts with labor unions, as provided in the Lewis-Krug Agreement to operate this nation's coal mines, then an ordinance of this Association must first be amended. I, therefore, recommend that the incoming president appoint a committee of five,

to be known as the Contract Practice Committee, to study and be ready if and when a crisis in this situation exists.

I wish to report to you that our prepayment medical care plan—in partnership with the Hospital Service Corporation of Alabama—has grown by leaps and bounds during the past year. All over the United States prepayment hospital and medical care plans had a phenomenal growth during the year 1946, but nowhere do we find a better plan, more nearly controlled by the medical profession, than here in Alabama. I wish to call attention to a few special points of interest in our medical care plan. At the end of our first full year of operation, forty-five thousand people in Alabama had availed themselves of this protection, and during the year we paid medical and surgical bills for them of more than one hundred and twenty thousand dollars. Because it is a non-profit organization, without increasing costs to subscribers, we increased benefits both to the certificate holders and to the doctors. We have now completed our plans with the Veterans Administration whereby the doctors of Alabama may render service to veterans, in service connected cases, and render our bills to Hospital Service Corporation and receive payment through them. If every doctor in Alabama will study and become vitally interested in our medical care plan, I believe we will have rendered an outstanding service to the people and to ourselves. Therefore, my next recommendation is for the Association to reaffirm its approval of the Hospital Service Corporation with the medical, surgical, and obstetrical care rider.

On January 31 of this year I, as President of this Association, was invited and attended a meeting of the Newcomen Club of England, American Branch. That organization seeks to cherish the memory of great men—men who have changed destiny by their discoveries or by the application of discoveries. At the meeting in Birmingham, attended by approximately two hundred and fifty industrialists, lawyers, doctors and educators, Mr. Thomas Martin, President of the Alabama Power Company, read a charming essay on a doctor—an Alabama doctor—Dr. William Crawford Gorgas. Mr. Martin convinced everyone present, if indeed there were any doubters, that it had not been for Dr. Gorgas, the Panama Canal would not have been cut. The meeting resolved itself into a definite plan—not to be stopped until success crowns our efforts—to put our beloved Gorgas in the Hall of Fame for Great Americans. I, therefore, make the following recommendations:

First: That the Medical Association of the State of Alabama nominate, endorse, and pledge itself to work to the end that the name of Dr. William Crawford Gorgas be placed in the Hall of Fame for Great Americans.

Second: That we instruct our delegates to the American Medical Association to introduce a similar resolution at the next annual meeting of that Association.

Third: That we convey to Mr. Thomas W. Martin our genuine appreciation of his efforts in keeping green the memory of our most distinguished doctor.

My next recommendation is as follows: That the Board of Censors of the Association appoint from its membership a subcommittee to be known as a Legislative Committee, the duties of this committee to be as follows:

First: Study every detail of the operations and finances of our State Health Department, with special reference to County Health Departments.

Second: Under the supervision of the Board of Censors to sponsor new legislation, if necessary, in order to free our County Health Workers from the State Merit System.

Such an important recommendation demands explanation. Most of you know that I started the first full-time health officership in Alabama in 1914 in Walker County. At that time the State Health Department had an annual appropriation of only twenty-five thousand dollars. I went from one end of this State to the other urging counties to appropriate money for health work. The movement grew rapidly and at one time, just before the last War, every county in Alabama had a full-time health officer.

I am proud of the part I played in this development, but it could not have been done without the enthusiastic support of the members of this Association. Today we are in reverse. We have a very strong State Health Department of which we are duly proud, but everyone who works in any County Health Department (Jefferson and Mobile excluded) works, not for the county, but for the State. Under the State Merit System salaries of County Health Officers and their entire personnel are fixed in Montgomery and are limited to such an extent that our best workers are leaving for other states and our County Health Departments are disintegrating or will do so. It is my belief that, unless we can find a way to correct this situation, the very house we have built and have been so proud of will fall in upon us. I also believe that unless this Association finds a way to make these changes, someone else will.

My next recommendation is as follows: That the Postwar Planning Commission of this Association, having finished its work as such, be discharged; that, in its place, the incoming president appoint a committee to be known as the Medical Care and Public Relations Committee of the Medical Association of the State of Alabama; and that the president name, as members of this committee, a chairman and at least ten other members, the president himself be an active member.

My last recommendation is that the annual dues of this Association be increased from five dollars per member to twenty-five dollars per member, and that the increased receipts of the Association be allocated by the Board of Censors for the approved activities of the Committee on Medical Care and Public Relations of this Association.

I realize these last two recommendations must have a great deal of explanation; but let me remind you that, if we are really to defeat social-

ized medicine, we must do it not by simply standing pat and screaming it shall not pass but rather by correcting as nearly as possible any defects in our system of medical care, and at the same time we must keep the public on our side. Every survey in the nation shows the people are on our side, and I insist we must keep them on our side. They are for us if they know the truth. Nearly every state medical association in the Union has come to the same conclusion. California, New York, Michigan, Ohio, and others have pioneered in this field. The Michigan State Medical Society is spending one hundred thousand dollars annually on public relations' activities. Each doctor in the State of Michigan is assessed twenty-five dollars per year for that activity alone. They have employed a full-time public relations' counsel who is not a doctor, but who works for the doctors. In that State they are spending thirty thousand dollars on advertising the truths about medicine and medical care. The State of Virginia has recently inaugurated a similar plan. South Carolina has inaugurated a plan with a part-time paid public relations' counsel or administrator.

I have appended to this message a list which shows the dues each doctor pays his medical association. Alabama, the first State in the Union, is not on the top but on the very bottom of the list. Every doctor in California pays one hundred dollars a year to his State Medical Association. South Dakota pays fifty dollars; Utah fifty dollars; Maine thirty-five dollars; Mississippi five dollars; and Alabama doctors pays five dollars each. Most labor union members pay that much each month to their union.

Here in Alabama the need for a full-time trained public relations' counsel who works for our Association is a necessity. The President of the Association is swamped with calls for service. He cannot do the job that should be done and be in the active practice of medicine. The Board of Censors of our Association is carrying too great a burden. Too much is being done by too few. Most of our members little dream of the work that is done and should be done of we are to maintain our profession on the pinnacle of professions. It is axiomatic that we get out of any organization what we put into it, and I am pleading with the doctors of Alabama to put more money and more work into our Association in a cooperative effort.

DUES OF STATE MEDICAL ASSOCIATIONS

	1946 Dues	1947
California	$100.00	100.00
South Dakota	15.00	50.00
Utah	15.00	50.00
Maine	12.00	35.00
North Dakota	35.00	35.00
Wisconsin	33.00	Not decided
Arizona	30.00	30.00
Washington, D. C.	30.00	30.00
Louisiana	25.00	25.00
New Jersey	20.00	25.00
Rhode Island	25.00	Not decided
Washington	20.00	25.00
Oklahoma	12.00	22.00
Connecticut	20.00	Not decided
Minnesota	20.00	20.00
New Mexico	10.00	20.00
Oregon	20.00	Not decided
Pennsylvania	20.00	20.00
Texas	20.00	20.00
Vermont	20.00	20.00
Colorado	18.00	Not decided
Iowa	10.00	15.00
Kansas	15.00	15.00
Nebraska	15.00	15.00
Ohio	7.00	15.00
Tennessee	15.00	15.00
West Virginia	15.00	15.00
Kentucky	15.00	10.00
Idaho	12.00	12.00
Michigan	12.00	Not decided
Illinois	8.00	10.00
Indiana	10.00	15.00
New Hampshire	6.00	10.00
New York	10.00	10.00
Missouri	8.00	8.00
Georgia	7.00	7.00
Virginia	7.00	7.00
Alabama	5.00	5.00
Mississippi	5.00	5.00
Arkansas	5.00	5.00

The President's Message was referred, without discussion, to the State Board of Censors.

REPORTS OF OFFICERS AND COMMITTEES

The reports of officers and committees were received and each referred, in its turn and without discussion, to the Board of Censors.

Report of Vice-President McNease

Northwestern Division

Most of the physicians from the Northwestern Division of our State Medical Association who have been in the armed forces of our country have returned to their respective localities and are again actively engaged in practice. A number of younger men who were in the armed forces have located in some of the counties comprising the district. I am confident that these men have been, and will continue to be, welcome additions in any locality throughout our entire State.

Several of the County Medical Societies of the Division hold regular meetings with good scientific programs. Some of the smaller counties have held only an occasional meeting due to the scarcity of physicians.

During the past year, as Vice-President from this Division, and thereby a member of the Post-war Planning Commission, I attended all meetings held by that body. A report of its activities will be given in this meeting.

In September 1946, in company with our President, Dr. Carl A. Grote, I attended a meeting of the National Physicians Committee which was

held in St. Louis, Missouri. There we learned from several physicians, and a few laymen, the tactics used by some of the members of the Senate Committee on Education and Labor who were favorable to the passage of Senate Bill 1606 in their attempt to foist compulsory health insurance on the American people. The physicians and laymen alluded to had appeared before the Senate Committee on Education and Labor during the hearing on Senate Bill 1606, which lasted from mid-April to mid-July 1946. Their testimony represented either their own individual views or those of certain groups or organizations.

The Executive Committee of the National Physicians Committee, and those of us attending the St. Louis meeting, feel that the medical profession and the American people are deeply indebted to Senator Donnell of Missouri for the wisdom shown by him during the hearing on the Bill, and the efforts he made to preserve in this Nation the best in our tradition and our institutions. Almost single-handed, he was instrumental in preventing the Bill from being reported out of the Committee during the last session of Congress. It was learned at this meeting that henceforth the principal financial support for the activities of the National Physicians Committee will have to be borne by interested physicians who believe that this organization has been of value and will continue to be of value. It is the opinion of Dr. Grote and I that the National Physicians Committee has been a necessary evil, if an evil at all, despite the adverse Rich report, and that we should and must keep it functioning indefinitely.

I regret that is has been impossible for me to hold a division meeting during the past year.

Report of Vice-President Jones Southwestern Division

Allow me to acknowledge gratefully the honor done me at your last meeting when I was re-elected a vice-president of the Association. During 1946 we had two sectional meetings in our division: At the first, we were guests of the Butler County Medical Society at a luncheon and scientific meeting. Members of the Medical College of Alabama graciously attended and gave very interesting papers. The second meeting was in Mobile, as guests of the Mobile County Medical Society. Technical papers were given by its members; and, in the evening, the doctors and their wives were guests of Van Antwerp-Aldridge Drug Co. at a banquet at the Country Club. Those who failed to attend certainly missed a treat.

Most of the societies in our division are not active in having scientific meetings; business meetings are held once a year. Local medical societies are not active in joining with local groups in planning for improvement of local health problems.

During the 9 years I have served as a vice-president, I have visited and talked with doctors in many counties in Alabama. With few exceptions, rural counties have no hospital facilities, or at best a small hospital with a closed staff. A majority of our rural doctors handle their own drugs and do the charity work of the community, having very little organized charitable assistance. These doctors are rapidly approaching the 60 to 75 age group. The citizens in rural areas are deeply concerned over the medical care situation, but are unable to do much about it. We all realize that the major problem facing the medical profession is the adequate distribution of medical care. This distribution depends on qualified personnel as well as adequate diagnostic and hospital facilities. The provision of well trained personnel is primarily a responsibility of the medical profession and also of medical education. There is evidence that the problems of medical education are being seriously considered by our medical schools. They should educate their students and interns as though every man was going into general practice. If a student wishes to specialize he can, but he should be trained as though he was going to be a general practitioner.

The difficulty in providing rural areas with the advantages of medical progress and the need of more doctors, dentists, medical facilities and nursing personnel are becoming more clearly realized and widely discussed by rural people, leaders in medicine, agriculture and public health, to say nothing of the interest in Congress.

Last year I was appointed a member of the American Medical Association's Committee on Rural Medical Services. This duty has taken me to Chicago and other out of state meetings. The A. M. A. committee has asked State Medical Associations to form committees on rural medical care and to undertake three general type of activities:

1. To make surveys of their medical and hospital facilities and availability of professional and nursing personnel. To formulate plans to take advantage of the provisions of the Hill-Burton Bill.

2. To endorse plans for extending to country people the benefits of prepayment insurance, and to make studies of plans for extending prepayment plans to low income and marginal farm groups.

3. To meet with interested farm and allied groups and agree on common objectives for common effort, and to join with these groups in forming health councils, especially on the local level.

So far, forty (40) states have formed these rural medical care committees. Many are well advanced in their planning, with legislation already passed and appropriations made. Other states are lagging behind, especially some of the Southern States.

In February 1947, the American Medical Association's Committee on Rural Medical Services held its Second Annual Conference on Rural Medical Care in Chicago. Over 400 members of the allied professions, farm groups, medical schools. insurance plans, governmental agencies, and social services, as well as many interested citizens. attended and took part in the two-day roundtable discussions of the following problems:

1. Hospital facilities and health centers for rural areas.
2. Methods of bringing and holding physicians and dentists in rural areas.
3. Voluntary prepayment plans.
4. Nursing needs of rural communities.
5. Health councils as agencies for promoting rural health.
6. Medical care for low income groups.

There was free and spirited discussion, with much give and take on both sides. However, the atmosphere was friendly and cooperative. The farm groups made frequent reference to restrictive legislation in many states; e.g., that prepayment plans must have the approval of 51% of the doctors in a state or county to become operative. Mr. Michael Davis of Washington seems to spearhead those demanding consumer control of insurance plans. He was actively supported by the farm groups with the exception of the Farm Bureau. Dr. Bachmeyer, in discussing the need for improving medical care in rural areas, said that, according to the 1940 Census, from 19 to 20 million people live in the open country, and that in over 11,171 of these communities, having a population of less than 1,000, there were only 151 hospitals, and 85% of these had less than a 50 bed capacity. There were many suggestions offered when the topic of "What further is there to do for rural medicine" was discussed, indicating that the field is broad in that there are many varied improvements necessary and deep in that there is much work needed. The A. M. A. committee believes these needs can be handled under a 4-point program:

1. Actual formation of state plans now being made, so that federal appropriations may be secured.
2. A campaign to educate the population in regard to the medical situation in rural areas.
3. Concerted community action through county health councils.
4. Cooperation among community groups with the state plan.

For several years the Postwar Planning Commission of our State Medical Association has been working on problems that have arisen in the past few years in medical care. On advice of the Commission, the Association has sponsored prepayment insurance covering medical, surgical and obstetrical conditions, as well as hospital insurance. Recognizing the many problems to be faced and solved in securing adequate medical care and facilities in communities where they are needed, the Commission, in November 1946, requested Governor Sparks to call a meeting of those agencies, organizations and individuals interested in the medical care situation, to consider the formation of an Alabama Health and Medical Care Council. As you know, this was done; Dr. M. S. Davie was elected Chairman, and an Executive Committee of citizens was chosen. After Dr. Davie's untimely death, I was asked to serve out his unexpired term.

The objectives of the Council are:

1. To provide an over-all organization, without any official responsibility or jurisdiction, which will embrace and include, as voluntary members, all organizations—professional, quasi-public, public and private—as well as any individuals now concerned with and maintaining a vital and continuing interest in the broad subject of health and medical care in Alabama.
2. To bring together medical and allied professional and citizen groups to the end that discussion, debate, interchange of opinion and planning for health and medical care problems may be affected.
3. To encourage, stimulate, foster and support the establishment of health and medical care councils in each county in Alabama; such councils to be organized along the lines of the parent organization.
4. To disseminate as widely as possible information pertaining to Alabama's health and medical care problems and programs.

The State Council is now beginning the work of organizing local county councils. After interested local groups are contacted and have named an individual to represent them, the County Medical Societies will be asked by the State Council to call a meeting for the purpose of organizing a council.

The Executive Committee of the State Council feels that the problems and plans for better medical care should have the advice and leadership of the medical and allied professions in the formation of these local councils and in their planning for local improvement. Therefore it pleads for leadership, advice and cooperation by the medical profession and the allied professions.

Report of Vice-President Morgan
Northeastern Division

At this time I wish to express my gratitude for the honor conferred upon me at our last meeting when I was reelected Vice-President to serve the Northeastern Division. It is always a great pleasure to render any service I can to our Association.

One of the greatest problems in our section is a lack of hospital accommodations; and in some areas there is a scarcity of physicians. In several places so-called clinics have been established. On the whole they are well equipped and are rendering very valuable service. Additional beds have been made available in several hospitals. In spite of these clinics and additional beds the crowded condition of the hospitals persists. In a further attempt to relieve the hospital situation a few of the counties in our division are carrying out plans to build additional hospitals under the Hill-Burton Act. Two counties have formed their organizations and made application for their planning funds.

Regular monthly meetings with good scientific programs are being held by several of our County Medical Societies, but some of the smaller ones are holding an occasional meeting only.

On December 6th a meeting of this Division was held in Huntsville and an excellent scientific program was enjoyed by a large number of physicians. Dr. Grote, our President, gave a most interesting address on the prepaid hospital and medical care plan which is making rapid progress in the State.

Report of the Secretary-Treasurer

Douglas L. Cannon

THE ASSOCIATION'S CENTENNIAL

This is the one hundredth anniversary of our Association. Of its birth, let the record speak. "It is almost a quarter of a century," said Dr. George A. Ketchum of Mobile, in addressing the Association in annual session in Montgomery on March 15, 1870, "since the first convention of medical men of this State assembled in the City of Mobile, and laid the corner-stone of what has since become The Medical Association of the State of Alabama. The Selma Medical Society was the first to urge upon the profession the need for medical organization. Mobile not only promptly responded but cordially invited the physicians of the State to meet in convention in Mobile. The invitation was accepted, and the first meeting was held in that city in 1847.

"How well," continued Dr. Ketchum, "do I remember the feelings with which I regarded that assemblage of the physicians of the State! I was young then in the profession of medicine, but already my heart was in my vocation. As I saw those gifted members of the profession, leaving their homes, their firesides, and their personal interests, sacrificing their time willingly and cheerfully, in the pursuit of measures to elevate their science, and counselling together for means to interpose between suffering humanity and the ills that threaten it, a new estimate of the profession was formed in my mind, new aspirations and promptings filled my soul, and with a heart swelling with honest pride, I renewed my oath of allegiance and devotion to its high behests and purposes."

Thus was recorded something of that historic occasion one might well dwell upon but it must be sufficient now to make but another reference or two.

It was on February 13, 1850 that the Association became a chartered body. "Be it enacted by the Senate and House of Representatives in General Assembly assembled," said the incorporating Act, "that A. Lopez, J. Marion Sims, N. L. Meredith, Thos. W. Mason, J. A. English, T. A. Bates, W. B. Johnson and H. M. Jackson, and their associates and successors of the Medical Association of the State of Alabama, are hereby instituted a body corporate under the name and style of The Medical Association of the State of Alabama . . . that said Association is empowered to adopt a constitution and pass such by-laws as may be deemed necessary for its good government....."

To this mile-stone Dr. Ketchum referred, when, in again addressing the Association, the occasion being the session of 1851, meeting in the Supreme Court Room of the Capitol in Montgomery, he said: "What sources of congratulation have we, as members of the . . . Association? We have drawn to the close of its fifth annual session; we watched with care its earliest organization, and nursed it through the trying period of its infancy. It has now become a chartered and incorporated body, exerting a decided influence on the profession throughout the State. It has openly avowed its claims to consideration and importance in the legislative halls, and its appeal is too manly, too heavily laden with the bests interests of all to be passed by unheeded in that deliberative body . . . Embarking as we did when we were beset by difficulties, we have guided our shop through the most perilous and intricate passage of its career, and we may now reflect with pride upon its secure position . . . We see the kindling enthusiasm, the increasing interest which begins to beautify the medical horizon as a bow of promise for the future. We see the counties of our State organizing their medical societies and combining in something like united action in advancing the standard of our noble art . . . We see the communities in which we live watching with eager interest these organizations of medical men, and they have cause to congratulate themselves that the men into whose hands they expect to commit their lives are earnest in their endeavors to attain professional excellence."

At the close of the War Between the States, a reorganization of the Association was necessary and was attained on March 3, 1868 in Selma. It was indicated also that a new constitution be adopted and this step was taken by the Association in 1873, at its session in Tuscaloosa. The meeting of 1874 witnessed the presentation of the first annual report of the State Board of Censors. Said the report: "We have just adopted a new constitution. Many of its provisions seem strange to many. Whether it has been in all things wisely planned or not, time will show. For the present, both good faith and good policy demand that we shall all give it an earnest and loyal support. Other plans of organization have been tried for many years together, and certainly with no result of which we have any reason to be proud. The friends of this new plan believe that it will lead us through the wilderness of despair in which we have journeyed so long into the promised land of professional regeneration, which all of us have looked forward to with unsatisfied yearning. If it fails, it adds only one more to the sum of failures we have already to lament. If it succeeds, no monument of marble in our public places—no monuments of affection in our hearts—can ever adequately express our obligations to those who have originated and carried it into execution."

The Seventy-Third Annual Report of the State Board of Censors is to be rendered at this session. This is tangible evidence that the plan has succeeded, and reason for taking from its sleeping place in "its native quarry in the bosom of this fair State . . . a block of spotless marble . . . to raise it high . . . engraven deep in enduring characters the lines that will tell future observers the triumph, the glory, and the fame" of our heritage.

PLACE OF 1948 MEETING

It had been hoped that this Centennial Meeting could be held at the Association's birthplace, but satisfactory arrangements looking to that end could not be perfected by the Mobile County

Medical Society. However, plans are in formulation for the 1948 session to be held there, and with the details you will be made acquainted later. For two successive years the Jefferson County Medical Society has been host to the Association. For this courtesy that has entailed much effort on the part of its members, the Association is under great obligation to the Society.

MEMBERSHIP OF THE ASSOCIATION

The membership of the Association as enrolled April 1, 1947 is 1629, the largest in its recorded history. The number is greater by 101 than that reported a year ago. Total number of physicians in Alabama is 1848, an increase of 75 since April 1, 1946.

DEATHS

Since the report of 1946, forty-three (43) members of the Association have died, including Dr. M. S. Davie, President in 1940, and a member of the Board of Censors at the time of his death; Life Counsellors, Drs. J. D. Dowling, V. J. Gragg, N. G. James and D. F. Talley; and Active Counsellors, Drs. C. O. King, Stewart H. Welch and A. L. White. The complete obituary record follows:

Appleton, T. H.	Collinsville
Burns, W. W.	Selma
Cleveland, C. Hal	Anniston
Davie, M. S.	Dothan
Dean, Leon	Ensley
Donald, P. Y.	Birmingham
Donald, T. C.	Birmingham
Dowling, J. D.	Birmingham
Emens, Redding	Decatur
Emerson, J. F.	Spring Garden
Floyd, M. T.	Ft. Payne
Forcheimer, H. H.	Mobile
Ford, W. F.	Gadsden, Rt.2
Fowler, J. T.	Birmingham
Gragg, V. J.	Magnolia Springs
Henderson, H. H., Sr.	Greenville
Hill, J. H.	Talladega
Huddleston, R. L.	Deatsville
James, N. G.	Hayneville
James, S. H.	Outwood, Ky.
Johnson, J. C.	Hamilton
Kelly, A. L.	Kansas City
King, C. O.	Birmingham
Lee, W. E.	Ft. Deposit
Martin, J. H.	Selma
Martz, Harry	Birmingham
Maxwell, J. A.	Tuscaloosa
McGehee, W. W.	Montgomery
Mitchell, H. E.	Birmingham
Newton, G. G.	Evergreen
Patterson, R. B.	Louisville
Piper, B. L.	Georgiana
Powell, O. C.	Titus
Reid, J. I.	Montevallo
Robbins, W. J.	Florence
Sibley, B. D.	Birmingham
Talley, D. F.	Birmingham
Tucker, J. S.	Dixiana
Welch, S. H.	Birmingham
White, A. L.	Thomasville
Wilkinson, J. G.	Birmingham
Yarborough, C. S.	Auburn

PRESIDENTIAL APPOINTMENTS

To serve until this meeting, President Grote appointed Dr. John W. Simpson of Birmingham a Censor to succeed Dr. M. Y. Dabney, who resigned April 26, 1946; and Dr. W. Hill McCaslan to succeed Dr. Davie, who died January 20, 1947. Dr. Davie's death created a vacancy in the chairmanship of the Postwar Planning Commission and it was filled by the appointment of Dr. B. W. McNease of Fayette. To a place on the Commission was named, also, Dr. E. G. Givhan, Jr. of Birmingham, succeeding Dr. J. Banks Robertson, resigned.

Dr. E. L. Gibson was named Vice-President of the Southeastern Division of the Association, to serve until this meeting, succeeding Dr. McCaslan, appointed to the Board of Censors.

Dr. D. G. Gill was appointed a member of the Board of Trustees of the Hospital Service Corporation of Alabama, succeeding Dr. B. F. Austin, resigned; and Dr. T. J. Anderson of Greensboro was designated to serve on the Corporation's Executive Committee.

As delegate and alternate, respectively, in the House of Delegates of the American Medical Association, President Grote appointed Drs. A. A. Walker and G. O. Segrest, their terms to expire with the 1948 session of the national body.

Committee appointments were made as follows: Drs. B. F. Austin and J. O. Morgan on Public Relations; C. M. Rudolph and E. S. Sledge, Mental Hygiene; T. M. Boulware and Hughes Kennedy, Maternal and Infant Welfare; J. P. Chapman and K. F. Kesmodel, Cancer Control; Lucien Brown and W. B. Hardy, Prevention of Blindness and Deafness; Ralph McBurney and G. O. Segrest, Postgraduate Study; Earle Conwell and Benjamin Meyer, Accidents and Industrial Health; M. Y. Dabney, Medical Archives and History; and R. E. Cloud and W. M. Salter on Physician-Druggist Relationships.

STATUS OF COUNSELLORS-ELECT

At the last meeting of the Association, five members—Drs. J. M. Donald, E. G. Givhan, Jr., M. W. Samford, Marvin S. White and R. D. Wright—were elected Counsellors. All except Dr. Wright have qualified fully as required by the Constitution and should be added to the Roll of Counsellors when the revision of rolls is made on Wednesday morning. Dr. Wright did not accept the office of Counsellor after his election.

OFFICERS TO BE ELECTED

Officers to be elected at this session are a president, a vice-president for the Southeastern Division, a censor to fill the unexpired term of Dr. M. S. Davie, deceased; another to complete the term of Dr. M. Y. Dabney, resigned; and two to succeed Drs. T. B. Hubbard and W. D. Partlow whose terms expire with this meeting.

There are to be elected, also, 20 Counsellors: *From the 1st Congressional District. 2*—Dr. J. D. Perdue's second term of seven years has expired; Dr. A. L. White is deceased. *From the 2nd. 3*—B. F. Austin has changed his place of residence; the second terms of seven years of Drs.

J. A. Martin and L. D. Parker have expired. *From the 3rd,* 2—The first terms of seven years of Drs. E. L. Gibson and W. Hill McCaslan have expired. *From the 4th,* 2—The first terms of seven years of Drs. J. F. Sewell and G. G. Woodruff have expired. *From the 5th,* 2—The first terms of seven years of Drs. A. L. Isbell and C. D. Killian have expired. *From the 6th,* 2—Dr. T. J. Anderson's second term of seven years has expired. Dr. J. P. Collier's first term of seven years has expired. *From the 7th,* 3—Dr. W. A. Gresham's second term of seven years has expired; Dr. A. C. Jackson's first term of seven years has expired. Dr. Merle Smith has changed his place of residence; *From the 8th,* 2—Dr. W. C. Hatchett has changed his place of residence; Dr. R. D. Wright did not accept the office of Counsellor to which he was elected in 1946. *From the 9th,* 2—Dr. C. O. King and Dr. Stewart Welch are deceased.

APPOINTMENTS TO BE MADE

A successor is to be named to Dr. B. F. Austin on the Public Relations Committee. To this committee there is to be named, also, another member because of the expiration of the term of Dr. G. O. Segrest. Other committees presenting vacancies for the same reason are: Mental Hygiene (Dr. K. F. Kesmodel); Prevention of Blindness and Deafness (Dr. B. B. Warwick); Postgraduate Study (Dr. Cabot Lull); Accidents and Industrial Health (Dr. Marcus Skinner); Medical Archives and History (Dr. S. A. Gordon); and Physician-Druggist Relationships (Dr. Seale Harris). Further, a successor is to be designated to serve on the Postwar Planning Commission in the place vacated by Dr. B. F. Austin. It will be a responsibility of the next president to make these appointments and to designate a delegate and alternate to the American Medical Association for the 1948 and 1949 sessions of that body to succeed Drs. Lloyd Noland and E. D. Lineberry, respectively, whose terms will expire with the current year's meeting.

FINANCE

The accounts of the Association for the year 1946 have been audited by Crane, Jackson and Wilson of Montgomery, and the audit constitutes the concluding pages of this report.

In the audit will be found not only statements of cash receipts and disbursements but also a record of securities owned—all U. S. Government Savings Bonds that have been purchased through authority given by the State Board of Censors, and which are in the Association's deposit box in the First National Bank of Montgomery.

CRANE, JACKSON AND WILSON
Certified Public Accountants
Montgomery 4, Ala.
April 9, 1947

Officers and Members,
The Medical Association of the State of Alabama,
Montgomery, Alabama.

Gentlemen:

We have examined the cash accounts of the Treasurer of The Medical Association of the State of Alabama for the year ended December 31, 1946, and submit the following statements:

Exhibit "A": Summary Statement of Cash Receipts and Disbursements for the year ended December 31, 1946.

Exhibit "B": Analysis of Cash Disbursements for the year ended December 31, 1946.

Exhibit "C": Securities Owned, December 31, 1946.

Our audit procedure included the tracing of all recorded cash receipts to the record of deposit of funds as indicated by bank statements submitted for our examination. All returned, paid bank checks, together with their supporting vouchers, were examined as to signature and endorsement, and were vouched to the record of cash disbursements. Mechanical accuracy of records was checked and proved.

The balance of cash on deposit at December 31, 1946, as indicated in Exhibit "A" was verified by direct correspondence with the depository.

Securities owned by the Association were examined by us in the safe deposit vault of the First National Bank of Montgomery, Alabama in company with Dr. Douglas L. Cannon. A schedule of these securities is submitted as Exhibit "C".

Respectfully submitted,
CRANE, JACKSON AND WILSON
By James Wilson, C. P. A.

THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA
SUMMARY STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
FOR THE YEAR ENDED DECEMBER 31, 1946

Exhibit "A"

Balance January 1, 1946:		
First National Bank, Montgomery, Alabama		
Checking Account		$ 4,522.09
Savings Account No. 1973		1,296.28 $ 5,818.37
Cash Receipts		
Association:		
County Dues	$ 4,767.50	
Counsellors	913.00	
Rosters of Association	16.00	
Interest on Savings Account	12.99	
Refund of Expenses — Chicago Trip	39.47	
Refund of Expenses — West Virginia Trip	65.00	$ 5,813.96

Journal:			
Advertising	$11,022.15		
Subscriptions	45.00	$11,067.15	$16,881.11
Cash Disbursements (Exhibit "B")			
Association		$ 6,678.64	
Journal		9,188.98	15,867.62
Balance, December 31, 1946:			$ 6,831.86
Consisting of:			
First National Bank, Montgomery, Alabama			
Checking Account		$ 5,522.59	
Savings Account No. 1973		1,309.27	$ 6,831.86

Exhibit "B"

THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA
ANALYSIS OF CASH DISBURSEMENTS
FOR THE YEAR ENDED DECEMBER 31, 1946

Association:			
Salary—Dr. D. L. Cannon		$ 650.00	
Printing and mailing 1946 Transactions		648.15	
Printing, Stationery and Office Supplies		229.12	
Postage		109.50	
Auditing		50.00	
Rental on Safety Deposit Box		6.00	
Refund of Dues		5.50	
Expense to American Medical Association		75.00	
Postwar Planning Committee		183.78	
Maternal Welfare Committee		15.00	
Expense of Division and Committee Meetings		205.66	
Expense of Annual Meeting:			
Programs	$ 124.50		
Lecturer	100.00		
Badges	76.63		
Reporting	72.90	374.03	
Purchase of U. S. Bonds		4,070.00	
Expense of Jefferson Hospital Suit		4.38	
Premium on Treasurer's Bond		50.00	
Repair of Adding Machine		1.75	
Bank Exchange		.77	$ 6,678.64
Journal:			
Salaries:			
Dr. D. L. Cannon, Managing Editor	$ 550.00		
Dr. W. W. Wilkerson, Editorial Assistant	300.00		
Luette Kilpatrick, Clerical Assistant	600.00	$1,450.00	
Printing, Addressing and Mailing Journals		7,723.73	
Refund of Subscriptions		3.00	
Refund on Advertising		2.25	
Clerical Assistance		10.00	$ 9,188.98
Total Disbursements			$15,867.62

Exhibit "C"

THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA
SECURITIES OWNED AT DECEMBER 31, 1946

Number	Type	Date of Issue	Purchase Price	Redemption Value 12-31-46	Increase	Date of Maturity	Maturity Value
20	$500.00 Series "C" U. S. Government War Savings Bonds numbered D459763 to D459782 inclusive	Oct. 1, 1938	$7,500.00	$9,200.00	$1,700.00	Oct. 1, 1948	$10,000.00
7	$500.00 Series "F" U. S. Government War Savings Bonds numbered D191057 to 191063 inclusive	July 1, 1943	2,590.00	2,660.00	70.00	July 1, 1955	3,500.00
6	$500.00 Series "F" U. S. Government War Savings Bonds numbered D22060 to D22065 inclusive	Jan. 1, 1944	2,220.00	2,262.00	42.00	Jan. 1, 1956	3,000.00
4	$500.00 Series "F" U. S. Government War Savings Bonds numbered D27410 to D27413 inclusive	June 1, 1944	1,480.00	1,508.00	28.00	June 1, 1956	2,000.00
3	$500.00 Series "F" U. S. Government War Savings Bonds numbered D385709 F to D385711 F inclusive	May 1, 1945	1,110.00	1,117.50	7.50	May 1, 1957	1,500.00
11	$500.00 Series "F" U. S. Government War Savings Bonds numbered D386331 F, D386367 F, to D386369 F inclusive, D386371F, D386373 F to D386376 F inclusive, D386378 to 3863-79 inclusive	Nov. 1, 1946	4,070.00	4,070.00	.....	Nov. 1, 1958	5,500.00
			$18,970.00	$20,817.50	$ 1,847.50		$25,500.00

Committee of Publication

Douglas L. Cannon, Chairman

The monthly circulation of the Journal at December 31, 1946 was 1750 copies, 1536 of which went to members of the Association, 80 to exchanges, 72 to advertisers and advertising agents, and the remainder to non-subscribers, and the files of the Association.

Receipts from advertising in the calendar year 1946 amounted to $11,022.15. Cost of publishing and distributing the Journal was $9,188.-98. Thus the Journal continued to be more than self-sustaining, advertising exceeding amount spent for publication by $1,833.17.

Transactions, also, were furnished the members of the Association, and the cost of this item was $648.15.

Committee on Mental Hygiene

The past year has been one particularly favorable to the aims and goals of this committee. For years we have recognized the need for more adequate psychiatric care and facilities in Alabama. We have long realized that our State has not met its responsibilities as regards the care and treatment of psychiatric illnesses, particularly on an out-patient basis. Now that the recent world war has given much publicity to the incidence of personality disorders in young men, both at the selectee level and in combat; that medicine in general has turned its attention toward psychosomatic disorders, and that Hollywood and novelists sense and encourage a widespread general interest in dynamics of human behavior, we have stepped forth with renewed vigor and enthusiasm to obtain for the mentally ill of Alabama better diagnostic and treatment facilities.

We have seized opportunities to enlighten and inform those lay groups that showed the least interest in present day psychiatry, what it is and what it might accomplish.

Members of this Committee have spoken to numerous luncheon clubs, Chambers of Commerce, P.-T. A. units and to various professional organizations—e.g., nurses, social workers and physicians.

Through invitation we have appeared on radio programs and in public forum discussions. We can report very definite enthusiasm and well formulated plans on the part of several of these lay groups to help provide for Alabama more

adequate psychiatric care on both an in-patient and out-patient basis.

What the immediate outcome will be is yet to be seen—but we do know that progress and growth in mental health in Alabama is inevitable.

Frank A. Kay, M. D., *Chairman*
C. M. Rudolph, M. D.
E. S. Sledge, M. D.

Committee on Maternal and Infant Welfare

In spite of a shortage of physicians and other personnel during the war years, some progress has been made both in maternal and infant welfare. Now that many physicians have returned to their respective communities, this progress should be greater. In 1946, child health conferences were held in fifty-nine centers in nineteen counties. This was two counties and five centers more than in 1945. This number should continue to increase.

These conferences were well-baby clinics. Sick infants were referred to their physicians for examination and treatment.

Diphtheria and smallpox immunizations were given. In two counties pertussis immunization was also given. A request has been made to the Children's Bureau for additional funds so that pertussis immunization can be offered in all counties.

These clinics were conducted by practicing physicians assisted by county public health nurses. The physicians were paid fees on a part-time basis. During 1946 approximately fifty physicians conducted the clinics.

TABLE 1

	1941	1942	1943	1944	1945
Total live births	65,238	73,266	78,094	74,395	70,124
Attended by physicians, per cent	68.8	72.2	74.3	75.0	74.5
Total stillbirths	2,438	2,349	2,377	2,203	2,040
Attended by physicians, per cent	66.9	70.6	71.8	72.1	70.8
Deaths under 1 yr.	3,830	3,581	3,486	3,421	3,155
Rate per 1,000 livebirths	58.7	48.9	44.6	46.0	45.0
Maternal deaths	349	295	304	282	237
Rate per 10,000 total births	51.6	39.0	37.8	36.8	32.8

From Table 1, it will be seen that the number of births attended by physicians is slowly increasing but too large a number are still unattended.

In the five-year period, the deaths under one year dropped from 51.6 to 32.8 per 10,000 total births. The improvement in the maternal death rate is particularly to be commended.

It is interesting to note that the rate of syphilitic deaths during the first year of life has dropped from 1.1 to 0.5 per 1000 live births. While the difference is small, the rate has been cut in half.

TABLE 2

	1944	1945	1946	Total 3 years
Infant cases completed	111	496	466	1,072
Cases receiving consultation, per cent	3.7	5.9	4.5	5.01
Cases hospitalized, number	59	300	251	609
Cases hospitalized, per cent	53.1	60.0	53.6	56.05
Hospital days, average per case	7.6	13.1	14.3	13.1

Table 2 shows the tabulation of infants receiving care under the Emergency Maternity and Infant Care program. The present E.M.I.C. program was instituted as an emergency measure. The emergency is now over but the E.M.I.C. continues. It is felt that this program should be abolished.

Plans are being discussed for establishing a center for prematures in Birmingham. This project is to be established in the Jefferson-Hillman Hospital and will be connected with the Medical School. A pediatric diagnostic center in Birmingham is also being discussed. It is earnestly hoped that these plans will materialize.

The Committee would like to recommend that tetanus toxoid be added to the diphtheria toxoid so that this added immunization can be given with greater ease.

A. E. Thomas, *Chairman*
Hughes Kennedy, Jr.
T. M. Boulware

Committee On Cancer Control

As the time arrives for making another report by your Committee on Cancer Control. it becomes apparent that the death rate from cancer in Alabama has made another advance since the last report. During 1946, 2,231 citizens of our State died from cancer, presenting a death rate of 77 per 100,000 population. While this is lower than the national death rate, it indicates the upward trend of cancer as one of the State's major health problems.

Your Committee has attempted to determine the essential duties and responsibilities delegated it in order to do more effectively the work assigned to it: Certain broad objectives that need to be attained are recognized as part of an adequate state cancer control program.

CANCER CONTROL OBJECTIVES

1. Professional education, through a campaign among the physicians of the State, emphasizing again the earliest indications of cancer, the need for utmost care in the examination of patients to determine the presence of cancer, periodic discussions in each County Medical Society of the various cancer problems. The fundamentals of cancer therapy should be presented to the profession; and clinics, as well as symposia on cancer, should be arranged for them during the year.

2. Public education is most essential in this program. Each citizen should become alert to the initial appearance of symptoms that may have cancer significance. Each person should be encouraged to have a periodic physical examination for the specific purpose of recognizing the presence of cancer. Every physician of the State should set the example, by submitting to such an examination himself. Authoritative literature should be published by the State Department of Health regarding cancer and its problems.

3. Treatment centers should be further developed and enlarged in order to render assistance more promptly to the increasing number of indigent cancer patients in need of treatment.

4: Detection and diagnostic centers should be encouraged, as a community project, in various population areas of the State. With the public co-operating with the medical profession, increased effectiveness of the educational campaign would become early apparent.

5. Statistical data concerning the facilities in the State for the recognition and treatment of cancer should be obtained. The development of a tumor registry, and the means of following up patients diagnosed by pathologists as having cancer, would enlarge the scope of the campaign. There should be periodic review of the results obtained, and progress made, in the state-aid program.

BUREAU OF CANCER CONTROL

Such objectives cannot be obtained without a strong and aggressive central cancer control department in the State Department of Health. This Committee does not have authority, the time, nor the funds with which to attain these essential objectives. The need is so great, and the opportunity is so tremendous, that such a Bureau should be organized at once. We urge the State Health Department to provide a director, and an adequately staffed department of cancer control during the year 1947.

TREATMENT CENTERS

There are five treatment centers taking care of the state-aid patients. Applications for treatment are sent to the Montgomery office, and the patients are directed to a treatment clinic. We have been interested in the growth of this work, not through any effort of publicity, but through sheer need for service. The State appropriation became available in October 1943, and in the three months of that year 37 patients were received and sent to treatment centers. In 1944, there were 497 patients, in 1945, 673 patients, and in 1946, 1,081 patients were certified for treatment. Perhaps during 1947 the number will grow to 1,500 or more. It is very disappointing that the State Board of Health has not been able to publish a detailed report on the results attained through this important program. It would add greatly to the standing of our State in the cancer program if the treatment centers could be approved by the American College of Surgeons, and we urge the State Department to endeavor to have the clinics approved.

THE AMERICAN CANCER SOCIETY

A justly deserved tribute must be paid, at this time, to the leadership in Alabama of the American Cancer Society. Mrs. Ray Meade, the State Commander, has no superior in regard to energy, enthusiasm, organizational ability and effective planning in carrying out her part of the cancer control program. Last year marked the greatest year of the Alabama Field Army, and 1947 shows evidence of surpassing all previously accomplished results. The state-wide educational program has been carried out largely through this organization. Your attention is called to the fact that Alabama has the first industrial detection clinic in the nation, and that, through the research plan of the American Cancer Society, three projects in the specific phases of cancer research have been awarded to Alabama investigators. The Cancer Control Committee is gratified with these achievements, and urges the medical profession to encourage the 1947 campaign of the American Cancer Society in its effort to raise twelve million dollars to provide the greatest, sustained and continuous effort to determine the cause of cancer in all medical history.

RECOMMENDATIONS

Your Cancer Control Committee would urge you to approve the following recommendations: First, that the Cancer Control Committee be permitted to enlarge the membership to five, when, in the discretion of this Committee, this will increase its effectiveness. Second, that the State Medical Association give its approval to a joint project of the Cancer Control Committee and the Field Army of the American Cancer Society of a Mobile Detection Unit similar to the Tuberculosis Detection Clinic. This unit will at all times be under the supervision of the state medical group, and will function only with the approval of the County Medical Society involved. Its work shall be educational, and for examination for cancer.

Your Committee has held several meetings and conferences with the State Health Department and other agencies interested in cancer control. Our efforts to achieve the fundamental objectives of the state cancer control program will be greatly increased during 1947.

J. P. Chapman, *Chairman*
French H. Craddock
Karl Kesmodel

REPORT OF MRS. RAY MEADE
STATE COMMANDER, FIELD ARMY
AMERICAN CANCER SOCIETY

The Field Army, American Cancer Society, Alabama Division, is proud of the progress made in Alabama during the past year. The interest of the citizens of our State has been aroused by hard work on the part of the Field Army personnel.

Through the radio, newspapers, magazines, outdoor advertising posters, street car and bus cards, distribution of literature and innumerable talks, there has resulted an interest in cancer control that is gratifying to a great degree.

The Alabama Division has expanded its facilities during the past year to a considerable extent. When one realizes that in 1942 the total assets of the Field Army in Alabama were $792.00. and that over a period of five years we have progressed to the point of a $61,000 drive in 1946, and taking into consideration the fact that we have paid our bills and conducted our educational program in the meantime, it is evident that the public is willing and anxious to support our work.

The broad scope of the American Cancer Society program cannot fail to impress each of us. With a $12,000,000 national goal for 1947—Alabama's quota is $107,000—each of us must bend every effort to raise this amount. However, fund-raising is necessary only insofar as it enables us to conduct the program we have laid out for Alabama.

We have taken two great forward steps during the past year. We have acquired the services of Mathis, Murphy and Bondurant, Atlanta, Georgia, to assist us in setting up public information programs in each county. Although we only began this work on January 15th, already the educational results are being felt. The plan we are using is one that has been tried and found very satisfactory by the Florida Division, where it has been in operation for some sixteen months.

A second forward step is the securing of Mr. Earle C. Lackey as Executive Secretary. Mr. Lackey has been very successful in his work with the USO and War Bond drives. We will have direct charge of the fund raising part of our work, but will also be available for other things as they develop.

During the year we have continued our bandage and dressing program, which is developed through the cooperation of the Montgomery Junior League. We furnish approximately 1,000 bandages per month to County Health Departments requesting them, for use of indigent cancer patients. We are developing a second service program of this type in our Jefferson County Division.

We have provided medical aid to some cancer patients in the State under the supervision of the local physician. We also have provided transportation to those patients who were given treatment under our state-aid program for indigent cancer patients, but who were unable to provide means of travel.

We made a substantial contribution of $2,000 to the Hillman Tumor Clinic, in order to enable the Director to purchase a supply of radium needles for interstitial radiation.

Through the cooperation of Dr. B. F. Austin, we were instrumental in securing the allocation of $3,300 to the local clinics for a paid Social Worker.

Other items include $500 for the transportation and board of misplaced persons, $2,000 for a photographic display for educational purposes, and $3,600 for clerical help.

The State Commander has traveled 25,000 miles during the past year via car, train, bus and plane, and has attended 97 meetings to represent the Field Army, American Cancer Society. She has given 50 talks of approximately thirty minutes each to men's and women's organizations all over the State. Literally thousands of talks have been given by our doctors and Field Army personnel. We issue a monthly bulletin to our Field Army personnel and interested friends, which serves as an exchange medium for our groups. We are very proud of our organization in Alabama, and especially proud of the fact that we have men serving as County Commanders in Baldwin, Bibb, Chambers, Choctaw, Coosa, Fayette, Lauderdale and Marion. The cooperation of all organizations—both men's and women's—as well as that of the medical group has contributed greatly to the advance that the cancer control program has made in Alabama.

It should be noted here that the work of the American Cancer Society is always under the supervision of the State Medical Association, and we in Alabama are especially cognizant of our responsibility in working with the Association and the State Health Department.

We have held one workshop meeting, one annual meeting, and several district meetings during the past year. Special mention should be given to our school program which is being developed to a high degree. Special school literature has been issued by our national office, which facilitates our program. A new animated film is also of great assistance.

Our State Treasurer continues to be Mr. Fred Duran, Vice-President, Union Bank & Trust Company, Montgomery. His Secretary keeps our books, as the State Commander handles no funds. Our books are audited in December and July by a Certified Public Accountant.

As you know, April is cancer control month, so designated by a special Act of Congress. We have showing at the present time some 272 outdoor advertising signs over Alabama, many window displays and posters. National Pharmacy Week, April 20-26, is being devoted to cancer control this year, and we have supplied window displays through the Alabama Pharmaceutical Association to all pharmacists wishing them.

We continue to be proud of our Industrial Cancer Clinic at Sylacauga, and wish to express our appreciation to Mr. Hugh Comer and the medical staff of Avondale Mills for their cooperation and interest. We are now undertaking the seventh six-month examination of women employees of Avondale Mills. Twenty-one individuals have been found to have cancer up to the present time. Approximately 650 persons have been examined regularly.

You will be interested to know that every department of the State of Alabama uses our Postage Meter Slug "Early Cancer Can Be Cured."

The State Commander would like to call the attention of the Medical Association of the State of Alabama to the fact that three grants have been made to groups in Alabama for work in cancer research. These grants were made upon recommendation of the Committee on Growth, National Research Council of the American Cancer Society. The grants are as follows:

To Dr. W. D. Salmon, Alabama Polytechnic Institute for the period of July 1, 1947 to June 30, 1948, the sum of $21,000 (institutional overhead not requested), for his research entitled "The relation of nutrition to cancer in experimental animals."

To W. A. Lazier, H. E. Skipper, C. Bryan, A. M. Mattocks, and A. Perdue, Southern Reserch Institute for the period of July 1, 1947 to June 30, 1948, the sum of $25,000 (institutional overhead included), for their research entitled "A search for therapeutic agents for neoplastic diseases."

To Dr. A. E. Casey, Baptist Hospitals, a grant (ACS Grant No. G-12) extended to cover the period July 1, 1947 to June 30, 1948 with the sum of $4,725 (institutional overhead included) for his research entitled "xyz and blood cell factors in relation to the Brown-Pearce tumor in rabbits."

It is also worthy of note that the main project selected by the Worthy Grand Matron of the Order of the Eastern Star for 1947 is cancer control. We have reason to believe we will have considerable financial aid in this manner.

The State Commander has been elected to the Executive Committee of the newly formed Health & Medical Care Council of Alabama. We feel that this is a fine recognition for the work of the American Cancer Society.

To all of the doctors of the State with whom I have had the pleasure of working, especially the members of the State Executive Committee, I want to express my sincere appreciation. If I have had a part in making the people of Alabama more cancer conscious, more alert, I am rewarded for the work I have tried to do.

The Field Army, American Cancer Society in Alabama will continue to educate our citizens to the fact that early cancer, in most instances, is curable. We realize in so doing that we are placing a great responsibility upon the medical profession. We know, however, that we can count on your full cooperation.

Committee on Postgraduate Study

The Committee on Postgraduate Study met in Montgomery, Saturday, March 29th, to consider the resumption of the program of postgraduate instruction which was discontinued in 1943 on account of the recent world war. All members were present, as were Drs. Douglas Cannon, Secretary-Treasurer of the Association, and D. G. Gill, State Health Officer, both acting in an advisory capacity.

After due consideration and discussion, the Committee unanimously offers the following recommendations:

1. To invite the Medical College of Alabama and its faculty to participate jointly with the Association in the resumption of its program of postgraduate study.

2. In lieu of the former circuit system of instruction, revival of which is improbable at this time, the Committee further recommends that, for the present, one or two annual postgraduate seminars be given in Mobile in order that adequate instruction may be made available and accessible to physicians over a wide area of the State and that the Medical College of Alabama be asked to furnish the instruction and the Mobile County Medical Society the clinical material. Also, that the seminars at Mobile be so spaced as to break the intervals between them and those held at Birmingham.

3. That all arrangements of the seminar programs be left entirely to the Dean and the Seminar Committee of the Medical College of Alabama and be carried out to the extent of the facilities of the Medical College. Also, that outside instructors may be used if and when deemed desirable.

4. Inasmuch as the sum of $1,000.00 annually for a period of three years was formerly appropriated to meet a part of the expenses of postgraduate instruction, but was discontinued in 1943 on account of the last world war, the Committee recommends that Section 2 of the ordinance entitled "Miscellaneous Appropriations," which reads: "not to exceed $300.00," be amended to read: "that $1,000.00 be appropriated annually for a period of three years." This is requested for the purpose of defraying expenses in whole or in part that may be incurred in connection with the proposed program if adopted.

5. It is further recommended that the thought of other forms of extension teaching be deferred until the seminar at Mobile has been tried and/or until such time as the Medical College and its faculty can enter into a broader program if such is deemed desirable.

6. Recognizing the high order of the instruction which the Medical College of Alabama, through its seminars at Birmingham, has given to the physicians of the State, the Committee sincerely believes that if postgraduate instruction of a similar nature, sponsored jointly by the Medical College and the Association is given at Mobile, the two seminars given in these widely separated geographic centers will not only offer a high type of instruction but will make it easily available to all physicians throughout the entire state of Alabama.

A conference respecting the Committee's proposals was subsequently held with Dean Kracke, whose reactions were quite sympathetic and highly encouraging.

A meeting of the Dean with the Seminar Committee and a representative of your Committee on Postgraduate Study will be arranged shortly. Your Committee is encouraged to believe that the outcome of such will be favorable, and if the above recommendations are adopted, it is not improbable that a seminar at Mobile may be initiated in the early fall of 1947.

Ralph McBurney, *Chairman*
Grady Segrest
Cabot Lull

Committee on Medical Archives and History

Your Committee on Medical Archives and History wishes to make its annual report, and to list the activities in Alabama along the lines of medical history, although all of them were not inspired by your Committeee. This has been our most eventful and fruitful year.

(1). The outstanding piece of work was the publication by Dr. Seale Harris of a biography called "Banting's Miracle" and an article on "Marion Sims and Other Nineteenth Century Pioneers" in three installments in the State Journal.

(2) The founding of the Alabama Society of Medical History by Miss Mildred Crowe and Dr. Emmett B. Carmichael.

(3) Two lectures to the medical students and faculty of the Alabama Medical College by Dr. W. Groce Harrison on "Sir William Osler As I Knew Him" and "Medical History as a Hobby."

(4) The publication by Miss Crowe in our State Journal of a paper called "The Medical College of Alabama's Library."

(5) The visit of Miss Crowe to a meeting of the New Orleans Society of Medical History.

(6) The receipt of two substantial collections from Dr. B. B. Weinstein, New Orleans, Louisiana: one dealing with books by or about physicians; and the other a valuable collection of medical book plates.

(7) The reading of two papers before the Alabama Society of Medical History: one on the "Forerunners of Surgical Anesthesia" by your Chairman; and a very scholarly paper by Dr. John M. Bruhn on "Andreas Vesalius."

(8) The visit of your Chairman to a meeting of the Charleston Society of Medical History; a paper before the Mississippi State Medical Association on "The Greatest Military Surgeons," and a paper before the Southern Medical Association on "The Conquest of Pain or The Story of Anesthesia."

(9) The receipt of numerous historical books, pamphlets, instruments, machine cases, saddle bags, etc., that were used by Alabama physicians.

In view of the fact that a Committee on Medical Archives and History exists in the Medical School Faculty, and because that committee is quite active, your Committee of the Association would seem to be superfluous, and we therefore recommend that it be discontinued.

Seale Harris
W. Groce Harrison
Emmett B. Carmichael
M. Y. Dabney, *Chairman*

Physician-Druggist Relationships

Jefferson County doctors and druggists had a joint barbecue at Roebuck Club, July 25th of the past year. In addition to food and refreshments there was golf and a soft ball game between the younger members of the two professions.

Serving with Dr. Joe Donald, President of the Jefferson County Medical Society and Mr. R. L. Lanier, head of the Druggists' Association, on the arrangements committee were Dr. A. Huey Green, Dr. Rhett Barnes, Dr. Charles H. Field, Dr. R. E. Cloud, Mr. D. O. McClusky Jr., Mr. V. L. Smith, Mr. Paul Tarrant and Dr. Leon Richards. Several hundred were present.

Local druggists were invited to attend the State Medical Association meeting to hear any papers that are of particular interest to them.

R. E. Cloud, *Chairman*
W. M. Salter
Seale Harris, Sr.

Postwar Planning Commission

B. W. McNease, Chairman

The present Chairman of the Postwar Planning Commission finds himself in the position because of the tragic loss to the Commission and the Association of Dr. M. S. Davie.

When Dr. Fred Wilkerson recommended in his Presidential Message to this body in April 1944 that a commission be created to give consideration to the problems expected to follow in the wake of the war, as well as perplexities already before the profession, Dr. Davie, though ill, was asked to accept the chairmanship of the body, and he did so with the graciousness that had always characterized his relationships in the Association he loved so passionately. What his leadership meant and the results it produced will live though he is dead. With Committeemen who were willing to be led, he charted his course and from it he did not swerve until he had attained, in great measure, the goals he had visualized. Chief among these, as is known to you, was a master hospital plan for Alabama, and an expansion of medical care plans through voluntary non-profit organizations, agreed upon only after exhaustive study and great deliberation. Were there no other monuments than these to his memory, they would be enduring ones. He envisioned other things, too, but these were a part of the book that was closed forever to human eyes when he died. We who are to carry on in his stead will long feel his influence upon our thinking. We wish that he could have carried on for a while longer, until continuing pressing problems had been solved, but he deserved a rest from his unselfish labors and we can not deny him of it.

One meeting of the Postwar Planning Commission was held during the year. This was in July 1946. It was called by Dr. Davie, primarily at the request of Dr. J. Paul Jones, who, as a member of the Council on Rural Medical Services of the American Medical Association, and as a member of the Postwar Planning Commission, thought that the medical profession would be placed in a very favorable position if it were to initiate a movement looking forward to the formation of a Health and Medical Care Council in Alabama, whose membership should include, as voluntary members, all organizations, professional, public, quasi-public and private, as well as individuals now concerned with or maintaining a vital and continuing interest in the broad subject of health and medical care in Alabama.

The Commission unanimously concurred in Dr. Jones' conclusions that rural medical care is a problem in Alabama as it is in all states, and that others besides doctors are interested in rural people and their medical care problems. A decision was made to petition the Governor, Hon. Chauncey Sparks, to call a conference of the various groups, organizations and individuals whom he and the commission believed would be interested in the formation of a Health and Medical Care Council in Alabama, to the end that discussion, debate, interchange of opinions and planning on health and medical care problems might be effected.

Pursuant to call issued by Governor Sparks, a conference met on November 13, 1946 in the House of Representatives of the State Capitol, and was presided over by Dr. Davie. Governor Sparks, in welcoming those attending, advocated a voluntary health insurance plan as a means of helping to clear up the health problems of the State. It was the Governor's desire that the conference turn into a permanent organization.

Papers were read by Drs. Davie, Grote and Jones, in which were related what the medical profession had done toward the solution of the medical care problems of the State. Dr. Kracke, Dean of the Medical College of the State of Alabama, gave an extemporaneous talk on "The Medical College and Medical Care." Mr. W. O. Dobbins, Jr., Director of the Alabama State Planning Board, discussed "Hospital and Health Center Plans." Mr. V. V. Mitchell, Secretary-Treasurer of the Ala. Farm Bureau Federation, in a paper pointed out the critical need for better rural medical care in Alabama, and told of the work the Farm Bureau is doing in the solution of the problem.

Those present voted unanimously for the formation of a permanent organization. A constitution was adopted, and the name of the organization is the Health and Medical Care Council of Alabama. Dr. Davie was elected Chairman. Following his death, Dr. J. Paul Jones was elected Chairman. I am pleased to report that the Executive Committee of this body is actively engaged in carrying out the objectives of the organization.

At the meeting in July 1946, the Commission was approached by physician representatives of the Veterans Administration who informed the Commission of their plight with regard to inadequacy of medical care to veterans, due to the enormous load of patients, and inadequate medical personnel, especially physicians, in the Veterans Administration. They solicited our help. After a thorough study by the Postwar Planning Commission, and with the approval of the State Board of Censors, an agreement has been entered into with the Veterans Administration for local doctors to render service to veterans. You were informed of this agreement in a letter from Dr. Grote dated March 20, 1947. In this letter, Dr. Grote called our attention to certain significant points in this agreement, and expressed the hope that all would approve.

The three members of the Postwar Planning Commission who are members of the Executive Committee of the Hospital Service Corporation of Alabama have attended most of the monthly meetings of the Committee and the annual meeting of the Corporation's Board of Trustees. We are proud to report that, at the close of the year, there were 46,000 members enrolled for medical and surgical service, and that more than $120,000 in claims were paid physicians during the year. Members are highly pleased in most instances.

I should like in this report to call your attention to recent liberalizations made in the medical and surgical rider which became effective March 1, 1947:

(1) Physicians will be paid $5.00 for the first hospital call and $3.00 per day for each subsequent hospital call not to exceed twenty-five such calls in any one contract year. This applies for members who are confined to a hospital for conditions not defined as surgery, or delivery of a child.

(2) The waiting period of three months for payment of tonsil and adenoid operations has been eliminated.

(3) Surgical procedures, including administration of anesthesia, performed in a doctor's office or clinic, or in the emergency room of a hospital, will be paid for, as well as for a bed patient in a hospital.

As of this day. no plan has proved actuarily sound with regard to payment for home and office visits.

As was pointed out by Dr. Davie in his report last year, none of our achievements can be carried to success without the integrated team-work of every member of our profession. With continuing cooperation on the part of all of us, much can and will be done to alleviate, if not entirely remedy, the medical care problem in Alabama.

Miscellaneous Business

Appeal filed by Dr. G. C. Kilpatrick of Mobile in behalf of Dr. Wallace Marshall, whose application for membership in the Mobile County Medical Society had been rejected, was referred to the State Board of Censors.

Similarly referred were resolutions introduced by Dr. J. P. Chapman relating to (1) "the continuing, active, enthusiastic and intelligent services" of Mrs. Ray Meade, State Commander of The American Cancer Society; and (2) the acquisition, by the Field Army of the Society, of a Mobile Cancer Detection Unit.

The resolution introduced by Dr. Frank C. Wilson asking for the appointment of a Standing Committee on Anesthesiology was likewise so referred.

Action of the Association on these matters will be found in the Board's report.

Afternoon Session, Monday, April 14

2:00 P. M.

Dr. Oliver W. Welch, Fairfield, read a paper on Heart Disease in Alabama.

A Report of a Case of Arrhenoblastoma was made by Dr. Julian P. Hardy of Birmingham. Dr. Arthur F. Toole, Talladega, was joint author.

Dr. Chas. J. Donald, Birmingham, discussed the Present Day Treatment of Putrid Lung Abscesses.

A Workable Concept for the Treatment of Toxic Thyroid was dealt with by Dr. E. A. Henderson of Opelika.

Dr. John K. Taggart, Jr., Jasper, read a paper on Some Recent Developments in Spinal Anesthesia, with Special Reference to Saddle Block in Obstetrics.

The last paper of the afternoon was on the Clinical Application of Sex Hormones in Gynecology, by Dr. Herbert H. Thomas of Birmingham.

Evening Session, Monday, April 14
8:00 P. M.

Dr. C. N. Carraway, Birmingham, gave A Review of 7000 Consecutive Acute Abdomens.

Dr. Stephen A. Zieman, Mobile, read a paper entitled The Fallacy of the Conjoined Tendon; New Technique in the Repair of Inguinal Hernia. His presentation was illustrated with slides and a motion picture.

Dr. J. P. Chapman of Selma introduced Dr. Allison E. Imler, Birmingham, who discussed the Care of the Cancer Patient.

The Care of Colostomy was discussed by Dr. J. G. Vance, Birmingham, to complete the evening session.

Second Day, Tuesday, April 15
Morning Session
9:00 A. M.

Dr. W. K. Sharp, Jr., U. S. Public Health Service, Richmond, Va., read a paper on The Part Played by the Physicians of Alabama in the Development of Public Health.

The Importance of Follow-Up Roentgenograms in Pulmonary Disease was the subject of Dr. A. Allen Good of Mayo Clinic, Rochester, Minn.

Drs. Albert Weinstein and Cobb Pilcher, Nashville, Tenn, dealt with the Management of Hypertension with Particular Reference to the Surgical Treatment.

The Jerome Cochran Lecture was delivered by Dr. Reginald Fitz, Boston, the subject being The Early Characteristics of Certain Chronic Diseases.

Dr. D. G. Gill, State Health Officer, acting for the Association, presented a citation to Senator Bruce Henderson, his prefatory remarks being as follows:

From time to time this Association pauses in its deliberations to honor some individual who has contributed noteworthy service to the people of this State. We honor ourselves today in awarding a citation to a man who, although a layman, has had a medical vision excelled by none.

Syphilis and its eradication has long been a dream of medical men and public health workers, but as fast as one case was found and cured a new case arose, and progress was slow. Our guest today, having a practical viewpoint, said, "Why not examine everyone? Treat all the cases and then new infections cannot occur." Theoretically he was sound and he followed up his theory by practical application. The Henderson Blood Test Law, requiring all persons between the ages of fourteen and fifty to be examined for the presence of syphilis, was passed by the 1943 Legislature by a unanimous vote and became the law of Alabama.

Difficulties associated with the war effort and the postwar period have interfered with the full application of the law, but as of April 1st of this year 860,330 persons had been tested in thirty-eight countries. Of this number 87,447 were reported as having a positive test and almost all of them have been treated.

We are now traveling at an accelerated pace and expect to finish the testing program in 1947.

On behalf of this Association I have the extreme honor of presenting to Senator J. Bruce Henderson this token of our appreciation for his vision and leadership.

This citation reads as follows:

"In recognition of outstanding service to the people of Alabama through originating and sponsoring the Blood Test Law, this Association awards to Senator J. Bruce Henderson this Citation as an expression of appreciation and esteem."

Senator Henderson responded in a brief message of gratitude for the Association's thoughtfulness.

Miscellaneous Business

The Secretary of the Association announced vacancies as follows in the College of Counsellors:

1st Congressional District—2. J. D. Perdue's second term of seven years has expired. Dr. A. L. White is deceased.

2nd Congressional District—3. B. F. Austin has changed his place of residence. J. A. Martin's second term of seven years has expired. L. D. Parker's second term of seven years has expired.

3rd Congressional District—2. The first terms of seven years of E. L. Gibson and W. H. McCaslan have expired.

4th Congressional District—2. The first terms of seven years of J. F. Sewell and G. G. Woodruff have expired.

5th Congressional District—2. The first terms of seven years of A. L. Isbell and C. D. Killian have expired, and Dr. Killian's health forces him to decline reelection.

6th Congressional District—2. T. J. Anderson's second term of seven years has expired. J. P. Collier's first term of seven years has expired.

7th Congressional District—3. W. A. Gresham's second term of seven years has expired. A. C. Jackson's first term of seven years has expired. Merle Smith has changed his place of residence.

8th Congressional District—2. W. C. Hatchett has changed his place of residence. R. D. Wright

did not accept the office of Counsellor after his election in 1946.

9th Congressional District—2. Dr. C. O. King and Dr. Stewart Welch are deceased.

Afternoon Session, Tuesday, April 15

2:00 P. M.

A motion picture was used by Dr. Alston Callahan, Birmingham, to show the Reconstruction of Eyelids and Eyebrows.

Dr. Lon Grove of Atlanta discussed Total Colectomy for Ulcerative Colitis, and gave report of cases.

Dr. Oscar T. Clagett, Mayo Clinic, Rochester, Minn., read a paper on the Surgical Management of Gastric and Duodenal Ulcers.

Present Day Trends in Anesthesiology was the subject of the paper read by Dr. E. B. Robinson, Jr., Birmingham.

Evening Session, Tuesday, April 15

8:00 P. M.

The evening session, preceded by a Cocktail Party given by the host Society, was a banquet meeting with the alumni of the University of Alabama School of Medicine. Addresses were delivered by Dr. Roy R. Kracke, Dean of the Medical College of Alabama, Birmingham, and Dr. Harrison H. Shoulders, President of the American Medical Association, Nashville, Tenn. Dr. Emmett B. Carmichael, Birmingham, gave Biographic Sketches of Dr. Josiah Nott.

The President's Ball, given by the Jefferson County Medical Society for the membership of the Association, their wives and guests, brought the evening to a close.

(To be concluded)

MEDICAL COLLEGE OF ALABAMA

CLINICOPATHOLOGICAL CONFERENCE

Reported by
Roger D. Baker, M. D.
Professor of Pathology

Conducted by
Beach M. Chenoweth, Jr., M. D.
Associate Professor of Pediatrics

PRESENTATION OF CASE

Dr. W. C. Cookston, Jr., Junior Resident in Pediatrics: A 2½-year-old white male was admitted on August 16, 1946 with the chief complaint of fever and swollen face. The fever began one week before admission. It responded temporarily to aspirin and phenobarbital. Three days before admission the patient vomited once. On the day of admission the temperature rose and the patient became restless. He began to have epistaxis and soon afterwards vomited. The mother noted that the right side of the face was swollen. The doctor who was called advised hospitalization.

The family, social and past histories were negative except that the child was prone to have convulsions when the temperature rose.

The patient was a well-developed and well-nourished boy who appeared moderately ill. The temperature was 103°F. The skin was warm, moist and elastic. There were several discrete, non-tender nodes in the cervical and axillary regions. The tonsils were large and injected. There was paralysis of the facial muscles on the right. Slight nuchal rigidity was noted. The heart, lungs, abdomen, genitalia and extremities seemed normal. The cranial nerves had normal function with the exception of the 7th as mentioned above. There was a questionably positive Brudzinski. The Babinski was not elicited and no clonus was present. The deep and superficial reflexes were physiological.

The urine was negative. Blood counts revealed 4 million red blood cells, 10,550 white blood cells with 16 lymphocytes, 3 monocytes, 77 segmented forms, and 4 stab forms. The hemoglobin was 84%. On the day after admission 10 cc. of clear fluid were removed by spinal tap. The fluid contained 26 red blood cells, and 21 white blood cells all of which were lymphocytes, and 126 mgm. % of sugar.

On the afternoon of admission the patient did not appear very ill. He ate well, played and slept. Early the following morning, however, he became restless. When offered

some orange juice he was unable to swallow it. From then on he was unable to swallow; and the throat kept filling up with thick mucus which required almost continual suction. The patient appeared acutely ill. The following morning he was stuporous. A short time later he become comatose. The temperature gradually rose to 105-106°F. and remained at this level until death. Glucose and lactate-Ringers were given intravenously. Gavage was instituted. He was never able to retain the gavaged material. He was given one unit of plasma. Other therapy consisted of attempts to combat the high fever, and the administration of vitamin B complex. He remained in coma and expired on the third hospital day.

CLINICAL DISCUSSION

Dr. Chenoweth: There are two questions I should like to have answered clearly. One of the chief complaints was swollen face and yet there is no mention of swollen face in the record of physical examination. Do you think facial nerve paralysis was the basis of the complaint?

Dr. Don Silberman, Senior Resident in Pediatrics: He had no swelling of the face on admission.

Dr. Chenoweth: What type of facial paralysis was this, central or peripheral? I think this makes a difference in our final conclusion.

Dr. Silberman: To my best recollection it was complete facial paralysis involving the left side.

Dr. Cookston: He could close his eyes.

Dr. Chenoweth: We are dealing with a 2½-year-old child with a febrile illness of one week's duration who dies with involvement of the medullary centers shortly after admission. The difficulty in swallowing and the excess mucoid secretions in the throat indicate involvement of these centers. Other than fever the only definite finding on admission was paralysis of a facial nerve. We might begin our differential diagnosis by asking the question, "In what conditions do we encounter facial paralysis in children?"

Student John Carter: From complications of osteomyelitis, arising from otitis media.

Student: Mumps.

Student: Brain tumor.

Student: Encephalitis.

Dr. Chenoweth: What types of encephalitis do you have in mind?

Student Jack Chisolm: How about a post-infectious encephalitis?

Dr. Chenoweth: Following what?

Student Carter: Measles, chicken-pox, or some other similar infection.

Dr. Chenoweth: What other infectious disease is frequently complicated by encephalitis?

Student: Mumps.

Dr. Chenoweth: In what other type of encephalitis is there frequently involvement of the cranial nerves?

Student Chisolm: Would you consider poliomyelitis in this group?

Student: Post-vaccination encephalitis.

Student: Epidemic encephalitis.

Dr. Chenoweth: That is the condition I wanted to mention. This is notably one disease in which cranial nerves are likely to become involved. We must consider all the various types of encephalitis. We can even talk about Japanese B encephalitis and others, but they are not important here. Encephalitis following measles, chicken-pox and mumps, as well as the usual epidemic encephalitis, are possibilities. Somebody mentioned brain tumor. What type of tumor would be likely?

Student Dudley: Medulloblastoma.

Dr. Chenoweth: Would that be likely to produce this picture? With what tumor in adults is facial nerve paralysis so often associated? Tumors involving the cerebellopontine angle. We do not see those tumors in children very often. There is one type of tumor often encountered in childhood which does involve cranial nerves, as in this case.

Student Possibly astrocytoma or medulloblastoma?

Dr. Chenoweth: Pontine tumors. Why should a pontine tumor cause an abrupt ending of life?

Student Carter: By obstruction of the spinal fluid.

Dr. Chenoweth: Preferably I should suggest sudden hemorrhage. What other possibilities are there in this case?

Student Chisolm: Bulbar poliomyelitis.

Dr. Chenoweth: That is right. Do you think it possible that there is paralysis of the facial nerve in poliomyelitis with no other symptoms of this disease?

Student Chisolm: I don't suppose so.

Dr. Chenoweth: Yes, this may happen in poliomyelitis and we have seen such cases. A diagnosis can be established from spinal fluid. Complete recovery may occur without residual paralysis.

Student: Myasthenia gravis should be considered.

Dr. Chenoweth: That should be mentioned. I recall a three-year-old colored boy whose only complaint was difficulty in swallowing. It was thought that he had a bizarre neurological disease. He had one of the most dramatic responses to prostigmine I have ever seen. Later on he developed other features of myasthenia gravis. What other causes are there for isolated facial paralysis?

Student: Meningitis.

Dr. Chenoweth: Acute meningitis with involvement of any of the cranial nerves must be considered. But the spinal fluid contained only 21 lymphocytes and 26 red blood cells per cu. mm. Spinal fluid like that would be likely to occur in what conditions?

Student: Tuberculous meningitis, choriomeningitis, any of the virus diseases.

Dr. Chenoweth: Any of the encephalitides. The small number of cells points definitely against a pyogenic meningitis, does it not? Let me mention two more causes of facial paralysis. There is the Guillain-Barre' infectious polyneuritis. The other is Bell's palsy. The latter is a facial paralysis for which there is no explanation and which generally fades away completely. What are some other reasons why a child might have these bulbar symptoms?

Student: Botulism.

Student: Rabies.

Dr. Chenoweth: Much more common than these two is one specific infection, diphtheria. What point in this case speaks against diphtheria?

Student: The time of onset of the paralysis.

Dr. Chenoweth: At what stage of diphtheria do paralyses occur?

Student: After several weeks.

Dr. Chenoweth: Yes. The interval in this case is too short. On this score diphtheria can be eliminated.

In summary, this is the case of a small child with a febrile illness of one week's duration with few signs at the time of admission except for stiffness of the neck and paralysis of a facial nerve. There are no changes in the reflexes and only 21 white cells per cu. mm. of spinal fluid. On the ward he developed manifestations of bulbar involvement and died. Acute poliomyelitis of the bulbar type appears to me to be the best possibility. The course is consistent with acute encephalitis of one sort or another. I don't believe it is brain tumor, diphtheria, infectious polyneuritis, and certainly not Bell's palsy. The time of the year is significant. It was the 16th of August, when poliomyelitis is likely to occur and not the time when diphtheria occurs. I should like to make a diagnosis of acute poliomyelitis. Would anyone like to differ?

Student: Is metastatic brain tumor a possibility?

Dr. Chenoweth: That certainly should be included.

Student: How do you account for the red blood cells in the spinal fluid?

Dr. Chenoweth: They almost surely came from trauma at the time of the spinal tap. I see nothing indicating intracranial hemorrhage. I think that one of the virus infections is the best diagnosis. Opposed to the diagnosis of poliomyelitis there are the normal deep and superficial reflexes. Most frequently in bulbar infections there is change in superficial reflexes. Other than that I see nothing opposed to the diagnosis of poliomyelitis.

Student: Does not this 126 mg. % of sugar support the diagnosis of poliomyelitis?

Dr. Chenoweth: It supports the diagnosis of a virus infection.

Dr. Stanley Kahn, Assistant Resident in Medicine: Would you explain the difference between Landry's paralysis and poliomyelitis?

Dr. Chenoweth: Landry's paralysis usually begins lower down and is an ascending type of paralysis. We do occasionally encounter an ascending paralysis in poliomyelitis.

CLINICAL DIAGNOSIS

Acute poliomyelitis

PATHOLOGICAL DISCUSSION

Dr. Baker: I should like to emphasize the negative gross findings in this case. Most of what is to be demonstrated will be seen in microscopic sections.

At autopsy there was frothy fluid exuding from the mouth and nostrils. More of this frothy fluid was found in the main left bronchus. There was a little corresponding edema of the left lung but in general the lungs were air-containing. There were petechial hemorrhages on the surface of the heart. The lymph nodes everywhere were prominent. Altogether, however, the organs of the trunk looked about normal.

The central nervous system also revealed little to the naked eye. There was a little hemorrhage in the lumbar region, not more than 1 cc. in volume, where the spinal tap was done. The spinal cord and brain were perhaps a trifle swollen. There were petechial hemorrhages on the cut surfaces of the cervical spinal cord.

Microscopically, however, the changes were spectacular. In the floor of the fourth ventricle where motor nuclei occur, there were petechial hemorrhages and much perivascular lymphocytic infiltration (*Fig.* 1). In the region just about where the nucleus of the seventh nerve should lie there was extensive cellular infiltration and some disorganization of the tissue. Apparently a number of the large ganglion cells had been destroyed. Others were in the process of being destroyed and the phenomenon of neuronophagia was noted (*Fig.* 2). Sections of the cerebral hemisphere showed essentially nothing abnormal.

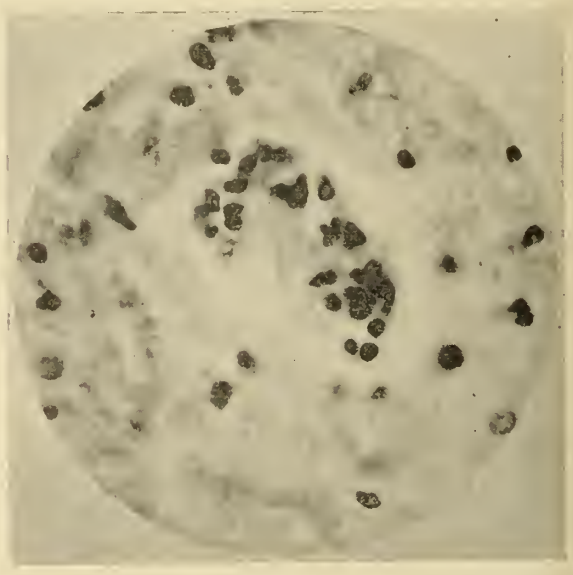


Fig. 2. Poliomyelitis, bulbar involvement. Neuronophagia and cellular infiltration of dead ganglion cell. Same level as Fig. 1.

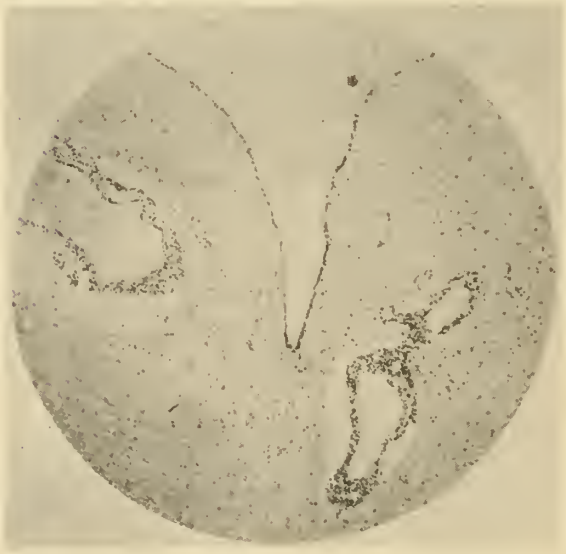


Fig. 1. Poliomyelitis, bulbar involvement. Note perivascular cellular infiltration adjacent to the V-shaped fourth ventricle. The petechial hemorrhages and other changes do not show in this field.

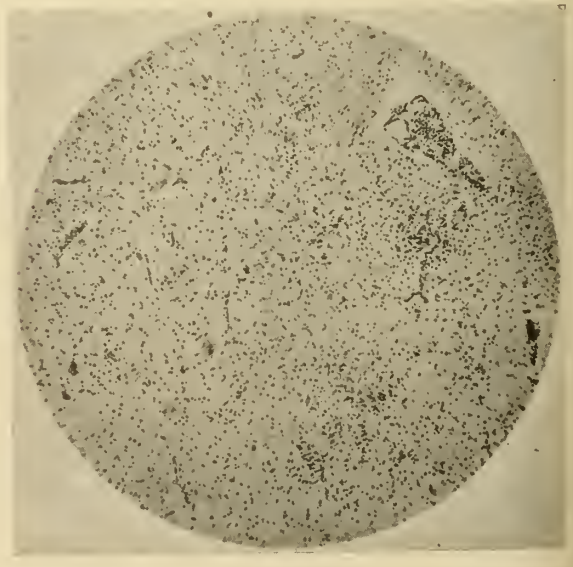


Fig. 3. Perivascular and diffuse cellular infiltration of anterior horn of thoracic spinal cord. Note motor ganglion cells. Others have possibly been destroyed. This region is characteristically involved in poliomyelitis.

In sections of the spinal cord there was perivascular infiltration of the gray substance of the anterior horn, with some loss of ganglion cells (*Fig.* 3). In the meninges there were round cells, some of which were lymphocytes and some of which were macrophages containing engulfed necrotic cells.

The cellular infiltrations, petechial hemorrhages, meningeal infiltrations and special involvement of the motor nuclei in the medulla and cord, with necrosis and neuronophagia, point very definitely in the direction of acute anterior polioencephalitis. This picture is almost specific histologically and I feel no hesitation in making a pathologic diagnosis of infantile paralysis. Encephalitis due to some other virus, epidemic encephalitis, and Landry's paralysis are all to be thought of but the histologic picture is far more like that of fatal infantile paralysis. With the death occurring in August and with other cases of poliomyelitis in the community, there seems little question about the diagnosis. Of course, the diagnosis is being made on a histologic basis, since it is difficult to diagnose the disease from the demonstration of the viral agent itself. Although inclusion bodies have been described in rare cases of poliomyelitis, they are of little practical use diagnostically.

ANATOMICAL DIAGNOSIS

Acute poliomyelitis (bulbar type)
Pulmonary edema
Epicardial petechiae
Calcification of renal tubules

The calcification of the renal tubules is an incidental finding of long standing, of unknown cause.

I should like to make some correlations. The swollen face I should think of as a manifestation of the facial paralysis, causing the cheek to become lax and to bulge if fluids were taken into the mouth.

I am going to ask Dr. Chenoweth to explain the epistaxis. Is it simply related to the febrile illness? The slight nuchal rigidity indicates the mild viral meningitis of poliomyelitis. This is seen as cellular infiltration in sections and is indicated by the increased number of white cells in the spinal fluid. The inability to swallow suggests that other medullary motor nuclei were being involved.

Dr. Chenoweth: I believe the epistaxis was non-specific, such as might occur in any febrile illness but particularly when lymphoid tissue of the nasopharynx is hyperplastic. It is common to see it in the course of any upper respiratory infection.

The terminal event was characteristic of bulbar involvement. There was peripheral circulatory collapse. This accounts for the petechial hemorrhages. They may occur in the skin of children with this infection. There was marked rise in temperature and involvement of respiratory and cardiac centers. The picture is one of peripheral collapse with generalized mottling of the skin, coldness, marked rise in temperature and failure of the heart and respiration.

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STATE DEPARTMENT OF HEALTH

BUREAU OF ADMINISTRATION

D. G. Gill, M. D.
State Health Officer

THE DISCOVERY OF THE CAUSE OF MALARIA

On October 23, 1881, a young British medical officer arrived in Bombay, India, and, after halting only briefly in that city, was ordered to proceed across the vast areas of that subcontinent to Madras. There he had his first wholesale experience with mosquitoes. Like you and me, he found the experience extremely unpleasant, but he stuck at his job, and for that millions of persons all over the world have great reason to be thankful.

That ambitious British medical officer was Major-Surgeon Ronald Ross, the man who proved that the parasite which causes malaria is placed in the human body by a certain species of mosquito. This epochal discovery laid the foundation for the present world-wide campaign against this disease, which, in the opinion of Dr. J. N. Baker, Alabama's late State Health Officer, has "probably had a greater effect upon the South's well-being than Sherman's March to the Sea."

Ronald Ross was the son of General C. C. G. Ross, K.C.B., a Scotchman; and his mother was an Englishwoman, whose maiden name was Matilda Alderton. The elder Ross made a distinguished record in the Indian Army, but his familiarity with the military profession aroused in him a stern determination that his son, one of ten children, must earn his livelihood in some other field.

"I wished to be an artist," he wrote in his memoirs, "but my father was opposed to this. I wished also to enter the army or navy, but my father had set his heart upon my joining the medical profession and eventually the Indian M e d i c a l Service, which was then well paid. So I resigned myself to this scheme, though I had no predilection at all for medicine."

His distaste for medicine as a whole continued, but as time went on he developed considerable enthusiasm for certain aspects of it, particularly physiology, histology and work with the microscope. Even his interest in these subjects had to be shared with an avid enthusiasm for poetry, music and, surprisingly enough, the writing of fiction. After completing his medical studies, which he began at the age of 17 at St. Bartholemew's Hospital, in London, he was able to meet the stiff requirements for admission into the Indian Medical Service and obtained his commission in 1881.

It was soon after that time that he arrived first at Bombay and a little later at Madras, as already pointed out. About two years later—that is to say, in 1883— he left the latter city, where mosquitoes made life so unpleasant, and began living in Bangalore, described by a radio speaker as "one of the most pleasant South Indian cities." But Bangalore's pleasantness did n o t include freedom from mosquitoes, either, for they made him as miserable there as he had been in the place of his former residence. This is what he had to say about them and what he did about them, as recorded in his memoirs:

"They devoured me in our bungalow until I discovered that they were breeding in a tub just outside my window, when I rid myself of nearly all the wrigglers in the tub simply by upsetting it. When I told the adjutant of this and pointed out that the Mess House could be rid of mosquitoes in the same way (they were breeding in the garden tubs and flower vases), much to my surprise, he was very scornful and refused to allow me to deal with them. He said it would be upsetting the order of Nature, and as mosquitoes were created for some purpose, it was our duty to bear with them."

Dr. Ross spent some time in Northwest India, Burma and the Andaman Islands but was forced to ask for a leave of absence because of his health. This was readily granted, and he departed in June 1888 for England. While there he attended to three important matters: the completion of a special study in bacteriology, the winning of a diploma in public health and, most important of all to him personally, marriage. He also did some additional studying in the field of bacteriology. Then he and his bride sailed for his old post in Madras. That was in August 1889. They arrived at their destination in early September, only to find that their stay there was to be most temporary as orders came almost immediately for his transfer to Burma.

Facilities were not available for him to carry out his projected studies in the field of bacteriology in his new work, but he was able to begin another kind of study, the study of mosquitoes and their habits. This was made more difficult and more important by the fact that there were no books on the subject to be had either in England or in India. He had just begun to get his teeth into this tasty new morsel of knowledge-s e e k i n g when he was transferred again, this time back to Bangalore.

There was considerable confusion in the minds of medical men of his time as to the relationship between malaria and the enteric diseases. Dr. Ross sided with those who rejected the time-honored but utterly false belief that malaria was due to evil vapors arising from swamps and marshes; and, while he was then unable to explain why persons living near such places appeared to be especially susceptible to malaria, he was doing some serious thinking on the subject. That thinking was to lay the foundation eventually for our present-day conception of the cause of malaria's spread—the breeding in such places of the malaria-transmitting mosquitoes, but he still had far to go before his objective was accomplished.

One of Dr. Ross' pleasures was fishing, and in 1891 he went on a fishing trip with a friend of his in the Nilghiri Hills. Enjoying this sport during the day and returning to their quarters at night, Dr. Ross insisted upon sleeping under mosquito netting, but the friend did not consider this precaution necessary. Later the friend developed malaria, while Ross himself remained free of the disease. Had he been more mosquito-conscious in terms of malaria dissemination than he was, he might have read an important meaning into this fact but did not, be-

cause, as one of his biographers pointed out, "even then no one suspected that mosquitoes were the carriers of malaria. Nevertheless, the Englishman was getting "warm," as children say when they play certain games, and in fact was on the verge of revolutionary discoveries in the field of malaria transmission and control. The trend of his thinking is indicated by a short poem which this amateur poet wrote about that time. As quoted by Dr. H. M. Speechly in a radio address heard some time ago, it is as follows:

Indian Fevers

In this, Nature, yield, I pray to me
I pace and pace, and think and think, and take
The fevered hands, and note down all I see,
That some distant light may haply break.
The painful faces ask—can we not cure?
We answer—"No, not yet, we seek the laws."
O God, reveal through all this thing obscure
The unseen small but million-murdering cause!

The Rosses returned to England in 1894 and spent the next four years in an intensified study of the mosquito as a possible factor in the prevalence of malaria. Dr. Ross became very much interested in the studies being carried on in Italy by Golgi, Rasori, Marchiafava and Bignami, who had been devoting considerable attention to a search for knowledge regarding microscopically small parasites living in the blood of humans, as well as the lower animals and birds. As interesting as these studies and their results were to Dr. Ross, however, he was as completely baffled as they were when he sought to find a reasonable explanation for the transfer of these small bits of life from one victim to another.

Meanwhile, Dr. Patric Manson, then on duty in Amoy, China, had been carrying on extensive studies in the transmission of certain diseases and had reached some definite conclusions for them. One of his conclusions he expressed to Dr. Ross during a conversation between the two men shortly after they met for the first time in 1894.

"Do you know," the former said to the latter, "I have formed the theory that mosquitoes carry malaria."

This observation, revolutionary as it was at the time, made a deep impression upon Ross. Moreover, it set up in his mind a determination to put the other man's theory to the test after his forthcoming return to India. That test and its results are described in the already mentioned radio address by Dr. H. M. Speechly. He said:

"Then for the next two years despite all sorts of official discouragements and other difficulties he persevered nobly until on August 20th, 1897 he discovered that the parasite which causes malaria is placed in human blood by a species of mosquito belonging to the Anopheles genus. Only the day before he had written despairingly to his wife telling of his failure to find the carrier of the parasite. 'But perhaps I am not using the proper kind of mosquito,' he wrote, adding later, 'I have found another kind of mosquito with which I am experimenting.' He referred to one of the Anopheles type . . . However, after a busy morning on that fateful August 20, 1897, he determined to use up the last five Anopheles specimens and search once again. It was terribly hot, he was wet with sweat, his eyes were tired, he was actually suffering from an attack of malaria, and unfortunately the eye piece of the microscope was cracked! Was it worth while after all? But he hung on to the job. 'I was tired,' he wrote. 'What was the use? I must have examined the stomachs of a thousand mosquitoes by this time. But the Angel of Fate fortunately laid his hand on my head, and I had scarcely commenced to search again when I saw what I was looking for! Victory!' "

This of course was the supreme achievement of his lifetime, indeed one of the great moments of medical history. He properly commemorated it with a bit of verse, as follows:

This day relenting God
Hath placed within my hand
Be praised at His command
Seeking His secret deeds
With tears and toiling breath.
I find the cunning seeds
O million-murdering Death!
I know this little thing
A myriad men will save
O, Death, where is they sting?
Thy victory, O grave?

Ross' discovery gave mankind the knowledge it needed to begin an effective and successful campaign against this robber of human life and energy. As soon as its full significance became known and it was put to use throughout the world, the medical profession and the official and unofficial public health agencies found in their hands a powerful weapon for malaria's control and for its eventual elimination. The warfare against this disease was placed upon a firm footing. The battle against this enervating and destructive enemy was brought out into the open and began to be fought along scientific, practical lines. No longer striking at an elusive foe in the dark, those agencies of health protection began to plan

campaigns like those of a military commander, based primarily and essentially upon destruction of the malaria-transmitting mosquito and preventing it from breeding.

Alabamians, in the heart of the "malaria belt," have special reason to be thankful for Ronald Ross' labors and their fruits. Thanks to them, great progress has been made in the conquest of this disease here, as well as elsewhere. As more funds become available for this work and personnel shortages become less serious, even greater progress should be made in the years ahead.

BUREAU OF LABORATORIES

H. P. Sawyer, M. D., Director

SPECIMENS EXAMINED

MARCH 1947

Examinations for diphtheria bacilli and Vincent's	360
Agglutination tests (typhoid, Brill's and undulant fever)	825
Typhoid cultures (blood, feces and urine)	827
Examinations for malaria	414
Examinations for intestinal parasites	1,987
Serologic tests for syphilis (blood and spinal fluids)	26,017
Darkfield examinations	41
Examinations for gonococci	3,314
Examinations for tubercle bacilli	2,060
Examinations for meningococci	2
Examinations for Negri bodies (microscopic)	142
Water examinations	1,321
Milk and dairy products examinations	2,689
Miscellaneous	480
Total	40,479

BUREAU OF PREVENTABLE DISEASES

CURRENT MORBIDITY STATISTICS

	Jan.	Feb.	E.E.* Feb.
Typhoid	3	1	5
Typhus	16	21	20
Malaria	14	18	49
Smallpox	0	1	0
Measles	92	98	550
Scarlet fever	52	71	76
Whooping cough	123	154	81
Diphtheria	27	31	37
Influenza	309	388	1313
Mumps	50	47	206
Poliomyelitis	2	7	2
Encephalitis	0	0	0
Chickenpox	153	132	163
Tetanus	2	2	2
Tuberculosis	181	162	214
Pellagra	1	1	9
Meningitis	10	8	13
Pneumonia	184	225	604
Syphilis	1245	1702	1424
Chancroid	23	13	9
Gonorrhea	690	671	475
Trachoma	0	0	0
Tularemia	1	2	2
Undulant fever	8	12	3
Dengue	0	0	0
Amebic dysentery	0	6	0
Cancer	325	233	0
Rabies—Human cases	0	1	0
Positive animal heads	46	46	

As reported by physicians and including deaths not reported as cases.

*E. E.—The estimated expectancy represents the median incidence of the past nine years.

BUREAU OF SANITATION

A. N. Beck, M. S. in S. E., Director

SOME PRESENT DAY PROBLEMS AFFECTING MILK QUALITY

Contributed by
R. C. Burkhardt, B. S.
Senior Sanitarian

The sale of Grade A or quality milk is a business vested with a public interest. This private enterprise is legally and sociologically a matter of strong public concern because:

1. Quality milk is an essential article of the diet.
2. Milk is a perishable food easily susceptible to dangerous contamination.
3. The production and supervision of safe milk requires technical skill and responsibility.

Mainly for these reasons, the milk business has been, now is, and always will be subject to extensive regulations by the cities and the State in the interest of the general welfare. The grading of milk was inaugurated to inform the consumer of the supplies which are properly produced and handled.

Here in Alabama some 25 years of reasonably successful milk inspection and milk improvement are behind us; ahead of us looms new problems. No food industry is ever without problems involving safety and quality. This is certainly true of the milk business. The past six years have in many instances been more than trying on both the milk plant operator and the Health Department which is responsible for supervising the safety and quality of the product. During these war years, efforts were made on the part of the Army and some people within the dairy industry to have Health Departments lay aside legal and necessary requirements for the production of milk. Fortunately, this State did not legally lower its requirements for Grade A milk for which it had striven so many years. However, this does not mean that milk quality was not lowered in a number of milk sheds or communities in the State. Some of the factors responsible for lowered milk quality were war connected and are now a matter of history. Many experienced milkers on the farm and milk plant employees in the city were inducted into the military services or were enticed by the higher pay of war

industries, to be replaced, if at all, by inexperienced workers with no background of milk sanitation. The shortage of critical materials used in the manufacture of dairy equipment and in the transportation of milk affected both the milk producer and the dairy plant. The expansion of milksheds to the point where they are measured by states added materially to the inspection problem. Price ceilings were such as to offer no adequate differentials between Grade A and lower grades so as to maintain high-grade production. To top things off, milk control staffs were depleted and their replacement with qualified sanitarians became increasingly difficult. Thus, when public health supervision was needed most it became least effective.

That milk quality has deteriorated during the war period can be denied by no one with a seeing eye and an open mind. Even the dairy industry journals are preaching improved quality of milk and dairy products to dealers who want to retain business in this postwar competition. Some cities and communities in the State are still being forced to use uninspected or ungraded supplies, or the milk plants are stretching their milk volume by adding ungraded condensed skim milk or powder and water to their graded supply. Although this shortage of graded milk is not as acute now as it has been the past several years, and we are not yet through the woods, the going does appear to be better. However, even in normal times, the seasonal fluctuation of graded fluid milk in this State provides a means to break down some local milk codes.

Now that the dairy industry is getting back to normal and dairy supplies and equipment are becoming more plentiful and easier to secure, it is time for County Health Departments to take stock, and set to work to reconstruct their milk control program and restore confidence in their milk supply. Where necessary, standards must be restored, enforcement improved, and new equipment provided on the farm, at the plant, and for proper transportation. Proper handling of milk by producers and processors may best be achieved through educational training courses for producers and plant operators, with a view to future licensing of plant operators.

Milk plant operators, more than anybody else, should accept their responsibility in the quality improvement of their product. Self-regulation of milk sanitation, both on the farm and in the milk plant, by the industry itself is as helpful and profitable as are regulations imposed by the Health Department. Mere compliance with official rules may result in an acceptable milk supply, but more rigid voluntary measures secured by the milk plant receiving the milk will result in a superior quality of milk.

Too many milk plant operators depend upon pasteurization as a "cure all." To these operators, pasteurization has made for more careless production, handling and buying; and it has served to put cleanliness and sanitation in a place of secondary importance.

Some milk plant operators also leave practically everything to their farmers, as far as the quality of the milk is concerned. They take it for granted their producers will do everything they can to furnish good milk, especially when their farms are inspected by the Health Department. They seem to forget that milk inspectors are concerned principally with sanitary conditions on the farm, equipment, clean methods and low bacteria counts. Milk can be both clean and poor in quality. Undesirable feed flavor may ruin an otherwise good bottle of milk. Processing such milk may minimize the bad flavor but will not bring back the good flavor by which the consumer judges milk. The mild, pleasing, appetizing flavor of high quality milk is put there on the well managed farm, and this same unaltered goodness of quality should reach the consumer. In addition, there should be added the highly important safety measure provided by proper pasteurization. Most milk plant operators know that high quality milk will build sales faster than almost anything else. It is well to keep in mind too that efficient plant checking will not reveal all that happened on the farm. If the plant is to sell only pure, wholesome milk of good flavor it should be familiar with the practices of the producers.

The fluid milk industry has witnessed somewhat radical changes in the past few years: as for example, homogenization, vitamin fortification, the highly efficient push button type of high-temperature

short-time pasteurization, the fast milking technique, square type milk bottles and every other day delivery. What has been accomplished in the past is only an indication of what can be done in the future. Some markets for graded pasteurized milk have been severely injured because of the subquality fluid milk put on the market by some milk plant operators during the war. To regain these markets and the confidence of the consumer will require hard work and intelligent effort by both the Health Department and the milk industry itself.

The milk business of the future will invite the investments of keen business men that are quality milk-minded. It will also demand a degree of efficiency found in comparatively few processing plants. Greatly improved plant equipment will require the attention of highly skilled workers. The old hit or miss methods and equipment are on the way out. They may be counted as war casualties. Both the dairy industry and Health Departments should prepare for the new era of quality milk products as fast as possible.

BUREAU OF VITAL STATISTICS

Ralph W. Roberts, M. S., Director

NATALITY AND MORTALITY STATISTICS

What is Alabama's health situation? What are the major causes of death? How is the health picture changing from year to year? What is happening to our human resources? These and many other similar questions are in the minds of all who are concerned about health and medical care. Answers to some of these questions can be obtained in part from natality and mortality records

Interpretations of vital statistics covering recent years are conditioned by a series of unusual fluctuations in the size and characteristics of Alabama's population since the census of 1940. The migration of workers and servicemen and their families, the movement of armed forces to overseas destinations and a sharp increase in the birth rate has each had an effect of varying degree and duration. These abrupt deviations from normal demographic trends greatly impede public health statisticians in performing their task of estimating population and calculating mortality and natality rates. During the war years of 1942 and 1943 natural population growth was high as a result of increased births and a continued reduction in the death rate. In addition to natural increases migration into the state exceeded emigration. In 1944 and 1945 the birth rate declined as a result of the tremendous overseas movement of military personnel. The end of hostilities, which made possible the return home of married men and others who soon married, has resulted in a spectacular rise in the birth rate. The great increase in births during recent years is worthy of special consideration. Provisional statistics show that 77,922 children were born in Alabama during 1946; an increase of 6 per cent above the average number registered annually during the preceding five years and 19 per cent more than were born in 1940. It is probable that births will remain at an unusually high level for several years if the number of marriages being recorded can be regarded as an indication of what may be expected. The resulting wave in the young population, which may not yet have reached its crest, will present and accentuate problems of health authorities, physicians, educators and others whose interests lie in community services and the general welfare of the state.

The effect of a changing population on mortality rates is easily recognized. Population characteristics usually exert a greater influence on specific death rates than does the size of a given population. This observation must be borne in mind when one is interpreting vital statistics compiled from an area having a bi-racial population such as we have in Alabama with considerable variations in the importance of certain specific causes of death. If specific death rates were standardized against what has been taken to be a standard distribution of people into age groups, the resulting standardized specific rates would be generally lower than those of past years, even for those causes that now give very high crude death rates.

The greatest number of deaths (and therefore the highest crude death rate) is seen in the heart disease category. Every year sees a great number of heart deaths.

This summary contains comparable provisional figues for 1946, 1945 and a five-year average. These crude indices of the general health situation should not be confused with final rates published in official annual reports compiled and tabulated by residence, race, sex and age.

It is seen from the accompanying table that crude death rates from heart and cancer diseases do not reflect a true situation. The apparent leveling off of the specific death rate comes from the fact that the increase in deaths attributed to these causes has not kept pace with population growth. Completeness and accuracy of registration, including cause of death determination, are fundamental factors which determine the reliability of all vital statistics.

Outstanding progress in saving lives has been made among newborn babies and their mothers. Notwithstanding the large number of births recorded in 1946, which taxed obstetric and pediatric facilities to the greatest extent in Alabama's vital statistics history, deaths associated with childbearing reached an all-time low of 25.3 maternal deaths per 10,000 total births and deaths of babies under one year of age dropped to a rate of 38.0 per 1,000 live births, the lowest ever recorded. Alabama's infant mortality rate is high in comparison with the national average (35 per 1,000 live births during 1946). The stillbirth rate of 25.8 per 1,000 total births is slightly higher than the 1945 figure but is significantly less than the annual average for the preceding five years. Although the stillbirth rate is comparatively low, it is hazardous to draw conclusions because the reporting of stillbirths is far from complete and there is no way of knowing whether reporting was better or worse in 1946 than it was in previous years. Benefits of prenatal and postnatal care are without doubt reflected in declining infant and maternal death rates. Continued improvement is possible. Final tabulations will compare conditions in the various parts of the state among white and Negro populations and will reveal serious problem areas.

Changes in mortality are shown in the accompanying table. Of the principal causes of death, heart diseases, cancer and accidents show numerical increases. Accidents have displaced nephritis to become the fourth ranking cause of death. Diabetes came up from tenth to ninth position to displace syphilis. While the downward trend of deaths from tuberculosis continued in 1946 there is always good reason to be concerned about the ravages caused by this disease among adults during the most productive years of life.

VITAL STATISTICS TRENDS

Births, Stillbirths and Causes of Death	Number Registered			Annual Rate*		
	1946	1945	Average 1941-1945	1946	1945	Average 1941-1945
Estimated population	3002140	2972280	2893980	.....	.....	.....
Births, exclusive of stillbirths	77922	72680	72232	25.8	25.1	25.0
Stillbirths	2289	2032	2310	28.5	28.2	31.0
Deaths, exclusive of stillbirths	24305	25039	26601	8.1	8.7	9.2
Infant deaths, under one year	2962	3120	3483	38.0	42.9	48.2
Typhoid and paratyphoid 1, 2	11	18	17	0.4	0.6	0.6
Epidemic cerebrospinal meningitis 6	33	61	50	1.1	2.0	1.7
Scarlet fever 8	1	1	4	....	....	0.1
Whooping cough 9	38	85	108	1.3	2.8	3.7
Diphtheria 10	30	59	54	1.0	2.0	1.9
Tuberculosis, all forms 13-22	1094	1177	1305	36.3	39.4	45.1
Malaria 28	30	34	69	1.0	1.1	2.4
Syphilis 30	319	366	404	10.6	12.3	13.4
Influenza 33	408	413	620	13.5	13.8	21.4
Measles 35	47	5	50	1.6	0.2	1.7
Poliomyelitis 36	21	22	25	0.7	0.7	0.9
Encephalitis 37	21	17	12	0.7	0.6	0.4
Typhus fever 39	8	41	31	0.3	1.4	1.1
Cancer, all forms 45-55	2227	2209	1977	73.9	74.0	68.3
Diabetes mellitus 61	344	360	355	11.4	12.1	12.3
Pellagra 69	91	99	135	3.0	3.3	4.7
Alcoholism 77	32	23	30	1.1	0.8	1.0
Intracranial lesions 83	2330	2417	2359	77.3	81.0	81.5
Diseases of the heart 90-95	5266	5195	5052	174.6	174.0	174.6
Diseases of the arteries 96-99	267	282	289	8.9	9.5	10.0
Bronchitis 106	50	44	39	1.7	1.5	1.3
Pneumonia, all forms 107-109	1101	1275	1452	36.5	42.7	50.2
Diarrhea and enteritis (under 2) 119	122	254	288	4.1	8.5	10.0
Diarrhea and enteritis (2 and over) 120	43	63	87	1.4	2.1	3.0
Appendicitis 121	119	174	189	4.0	5.8	6.5
Hernia, intestinal obstruction 122	179	201	197	6.0	6.8	6.8
Cirrhosis of the liver 124	132	107	124	4.4	3.6	4.3
Nephritis, all forms 130-132	1892	2101	2517	62.7	70.4	87.0
Diseases of the puerperal state 140-150	203	230	290	25.3	30.7	38.9
Puerperal septicemia 140, 142a, 147	67	76	88	8.4	10.5	11.8
Suicide 163-164	212	168	167	7.1	5.6	5.8
Homicide 165-168	417	337	359	13.9	11.3	12.4
Accidental deaths (exclusive of motor vehicles) 169, 171-195	1179	1267	1394	39.3	42.3	48.2
Motor vehicle 170	738	623	601	24.3	21.0	20.8
All other causes	3790	4003	3832	126.2	134.7	132.4
Ill-defined and unknown causes 199-200	1510	1634	2102	50.3	55.0	72.6

*Birth and death rates per 1,000 population; stillbirths per 1,000 total births (stillbirths included); infant deaths per 1,000 live births; deaths from specified causes per 100,000 population; deaths from puerperal causes per 10,000 total births.

The 1946 provisional statistics show a decreased number of deaths caused by contagious diseases with the exception of measles. Although deaths from whooping cough dropped off sharply in 1946, the 38

deaths from this cause make a tragic commentary on the failure to immunize all babies against the disease. Another cause for concern is the number of deaths from diphtheria. Despite a decline of nearly one-half in the mortalities from this deadly disease, the fact remains that the 30 deaths that were attributed to diphtheria in 1946 could have been prevented by immunization. Malaria and typhus fever are becoming less prevalent as causes of death because of control work, DDT spraying and dusting which is being conducted in many localities.

So it is that the health situation in Alabama as revealed by natality and mortality statistics has a bright side and a dark side. It is well known that conclusions drawn from these crude data must be modified, especially during this period of unusual change. Crude rates do not measure the true state of health. A statement that Alabama has a lower crude death rate than that of the nation is insignificant[1]. These data must be standardized to take into account age, sex, race and residential differentials before valid comparisons can be made.

1. For a comparison of standardized rates see Alabama State Planning Board et al: *Health and Medical Care in Alabama*, 1-11, 1945

BOOK ABSTRACTS AND REVIEWS

The Treatment of Diabetes Mellitus. By Elliott P. Joslin, A. M., M. D., Sc. D., Medical Director, George F. Baker Clinic, New England Deaconess Hospital; Clinical Professor of Medicine Emeritus, Harvard Medical School; Consulting Physician, Boston City Hospital; Howard F. Root, M. D., Physician-in-Chief, New England Deaconess Hospital; Consultant in Medicine, Eastern Maine General Hospital; Massachusetts State Infirmary, Tewksbury, Middlesex County Sanitorium; Associate in Medicine, Harvard Medical School; Priscilla White, M. D., Physician, New England Deaconess Hospital, Instructor in Pediatrics, Tufts College Medical School; Alexander Marble, A. M., M. D., Physician, New England Deaconess Hospital; Instructor in Medicine, Harvard Medical School, Colonel, Medical Reserve Corps, U. S. Army; Chief, Section on General Medicine, Branch No. 1 (New England), Veterans Administration; and C. Cabell Bailey, M. D., Physician, New England Deaconess Hospital; Research Fellow in Medicine, Harvard Medical School. Eighth edition, illustrated. Cloth. Price, $10.00. Pp. 861. Philadelphia: Lea and Febiger, 1946.

Anyone who is even slightly acquainted with work done on diabetes by Joslin and his associates, anyone who has come in contact with Joslin's magnetic personality or listened to his educational programme for diabetics would accept this book on diabetes, by Joslin and his associates, to be a valuable addition to the working library of the general practitioner. It is disappointing to the reviewer that he is unable to be enthusiastic in his praise of this book but since it has been his policy to be honest in his description of books, this review must be "faint praise indeed." There is too much padding in this book. Too much that is now old and useless is still retained. Reviews of the literature before the days of insulin and long pages of statistics prove very boring to the practitioner who wants to know specifically how to treat the disease. After reading the first 328 pages I was so bored that I had to put the book aside for awhile. I wondered for whom the book was written, who was supposed to be the prospective buyer. I think the reason for this dullness is now obvious. The authors have added and added to their book in its many revisions but they have not been willing to cut out what is no longer of value. If they could take on one more editor whose scissors and pencil could remove about half of the contents of the book, the remaining volume would probably appeal both to internist and general practitioner. As the book now stands, many people will buy it because of the names on the title page but few will read it and it will, therefore, fail in its mission to convey to thousands of doctors who are the first to see diabetics, some of the enthusiasm, experience and wisdom of the group from the New England Deaconess Hospital.

If the reader is persistent enough he will find much of interest in the latter half of the book and he will find the volume an excellent reference work but few doctors other than those in the teaching field will get full benefit from it. To the teacher only can I conscientiously recommend this book.

C. K. Weil, M. D.

Health Instruction Year Book, 1946. Compiled by Oliver E. Byrd, Ed. D., Associate Professor of Hygiene, School of Health, Stanford University. Foreword by C.-E. A. Winslow, Professor Emeritus, Yale University School of Medicine. Cloth. Price, $3.00. Pp. 399. Stanford University, California: Stanford University Press, 1946.

In these days of fast moving events when busy people have the feeling that there is not sufficient time for doing all one has to attend to, it is most gratifying to find a book of facts, records and comments on so comprehensive a scale. The 1946 edition of Health Instruction Year Book is of this sort.

The author has the manifest ability to see clearly what he needs and wishes to do, and he appears to have known where to find and how to assemble and organize his carefully collected facts. His arrangement of material is exactly what the busy man or woman needs.

From more than 1,500 articles published between June 1945 and June 1946, the author effectively extracts the choicest meats, and then arranges them in logical fashion for use as simple and interesting reading or for use as a rich source of reference material.

The 21 clearly written chapters are indeed a rich mine of wealth for all who sincerely desire to know the latest in health measures and practices.

Dr. Byrd shows that he knows how to select the best from a large collection of the good, and also how to record his findings so that all interested persons may profit by the use of his production.

James M. Graham, D. D.

Sex Education. A Guide for Parents, Teachers, and Youth Leaders. By Cyril Bibby, M. A., M.Sc., F. L. S., Education Officer to the Central Council of Health Education; Senior Lecturer at the College of St. Mark and St. John, London; sometime scholar of Queen's College, Cambridge. Cloth. Price, $2.50. Pp. 311. New York: Emerson Books, Inc., 1946.

This book was written to assist teachers and parents in giving to children of all ages the kind of sex guidance and education which will prepare them best for adult adjustment and happy living. Opportunities for sex instruction present themselves frequently both in the home and in the school, and the author recommends that questions be answered frankly and honestly when they arise rather than through a formal presentation of the sex problem. Some of the sex problems which are likely to come up in primary school are, in the author's opinion, no problem at all. They appear as such only because the teacher is prudish. Those which are more likely to lead to serious results are discussed in detail. The problems of adolescence, which are naturally fraught with danger to the child, are given more detailed consideration. Many of the questions asked by children of various ages are quoted with answers which, on the whole, seem quite simple and adequate.

This is an excellent little book. It is sane, practical, honest, and full of understanding of the problems faced by children and youths and even some young adults. The author's way of telling these individuals, in language which they will understand, the answers to their specific problems should help anyone who has the responsibility of training youths.

C. K. Weil, M. D.

X-Rays and Radium in the Treatment of Diseases of the Skin. By George M. MacKee, M. D., Profesor of Clinical Dermatology and Director, Department of Dermatology; and Anthony C. Cipollaro, M. D, Assistant Professor of Dermatology and Assistant Director, Department of Dermatology, New York Post-Graduate Medical School and Hospital, Columbia University. Contributor—Hamilton Montgomery, M. D., Associate Professor of Dermatology, Mayo Foundation, University of Minnesota. Fourth edition, thoroughly revised. Cloth. Price, $10.00. Pp. 668, illustrated with 321 engravings and 4 color plates. Philadelphia: Lea and Febiger, 1946.

The authors of the book are recognized as foremost authorities in the field of dermatologic radiation. This excellent book opens with a historical discussion of roentgen rays and radioactive elements. Following this come several chapters on the physics of radiation. Following the same rational approach, the practical aspects of radiation technic are fully discussed. Biologic effects on both normal and pathological tissue are next, followed by suggestions for therapy of specific cutaneous conditions, and last by medicolegal aspects. The entire book is thorough and at the same time very practical.

F. W. Riggs, M. D.

Q Fever—A laboratory outbreak of Q fever involving 47 human beings exposed in a single building of the National Institute of Health has been studied from the epidemiological standpoint.

A total of 317 persons were studied for evidence of Q fever. One hundred and twenty persons who were never present in building 5 during the outbreak were found to be serologically negative for Q fever. On the other hand, 44 of 142 workers and 3 of 55 visitors in building 5 were shown to have clinical as well as serological evidence of Q fever.

Rocky Mountain spotted fever tick vaccine and exposure during a previous outbreak of Q fever were factors possibly tending to reduce the incidence of Q fever during the 1946 outbreak. The history of Q fever work at the National Institute of Health and a chronological study of cases in laboratory workers showed a correlation between the dates of preparation of yolk sac antigens and the probable dates of exposure in the cases.

The unsuspected resistance of *R. burneti* to such chemical agents as formalin and the manipulations required in preparing antigens were considered as possible factors in the outbreak. Guinea pig excreta were also considered as a possible source of the human outbreak since viable *R. burneti* have been recovered from the urine of guinea pigs months after defervesence of the disease. However, no definite evidence incriminating guinea pig materials was elicited. Sera from 192 guinea pigs maintained in building 5 were examined for Q fever by the complement-fixation test—20 were positive. One hundred and six guinea pigs maintained outside building 5 were negative. Accepting the reports that transmission of Q fever from infected guinea pigs to normal guinea pigs in the same cage does not take place, some other explanation of the guinea pig infections seems necessary.—*Huebner, Am. J. Pub. Health,* April '47.

AMERICAN MEDICAL ASSOCIATION NEWS

A. M. A. Centennial

Nineteen hundred and forty-seven marks the centennial year of the American Medical Association.

On May 5, 1847 delegates to the National Medical Convention met in the hall of the Academy of Natural Sciences in Philadelphia and founded the American Medical Association.

Several names were first suggested for this new permanent national association of physicians, including "The Conventional Association of the United States," and "The Medical Association of the United States of North America." Both these proposals were lost on the convention floor, after which the constitution was offered and accepted. The constitution included the clause "This institution shall be known and distinguished by the name and title of the American Medical Association."

The first president was Dr. Nathaniel Chapman, of Pennsylvania.

A. M. A. PROSECUTES WAR ON QUACKERY

From the very beginning the American Medical Association has prosecuted its war on quackery and more than any other agency in the country can take the credit for the vast improvement that has occurred in the abolition of nostrums, secret medicines and quackery. At the session of May 7, 1847 Dr. John B. Johnson of Missouri introduced a resolution in which he pointed out that numerous and important evils result from the universal practice of allowing persons almost wholly ignorant to engage in apothecaries and still greater from the universal traffic of secret medicines. He urged that schools of pharmacy be established in the individual states and that some rule be adopted that no physician patronize a druggist or apothecary who deals in "patent" or secret medicines.

The delegates who attended that historic meeting numbered 250 and represented more than 40 medical societies and 28 colleges, embracing medical institutions in 22 states and in the District of Columbia.

ASSOCIATION HAS 131,590 MEMBERS

Today the association has 131,590 members and 72,243 Fellows. Members in good standing in the constituent medical associations of the states become automatically members of the American Medical Association. They do not pay any dues or contribute financially to the association. Members may apply for Fellowship, and if qualified pay Fellowship dues and subscribe for The Journal.

The association is organized along much the same lines as our government, that is, it is a democratic organization. The cornerstone of the association is the county medical society, of which there are more than 2,000, known in various parts of the country as county societies, parish societies or district societies. The county societies in a state make up the state society. The association is thus seen to be federation of constituent state societies which in turn are made up of component county or district societies. The policies of the A. M. A. are determined in the last analysis by the House of Delegates, deriving its power from the state societies, which in turn derive their authority from the local membership. The national officers and employees of the association work under the direction of the Board of Trustees, elected by the House of Delegates.

MEDICAL ADVANCEMENTS HELPED TO BUILD A. M. A.

The prodigious advancements in medical science during the last 100 years helped to build the American Medical Association, which educates its members through meetings, exhibits, its many periodicals, its councils and committees and in many other ways. The benefits of all these activities are passed on to the public—the ultimate consumer.

The A. M. A. is a non-profit institution. Its purposes are to promote the science and art of medicine; to organize the medical profession and safeguard its interests; to elevate the standard of medical education and practice; to bring about the enactment of uniform legislation for the public welfare and to protect the public health.

A. M. A. DEVELOPS MANY ACTIVITIES

The A. M. A. has in the course of time developed a large number of activities, all of which directly or indirectly react to the benefit of the public health.

In 1873 the Judicial Council of the association was first organized to deal with matters concerning professional ethics. It is not generally realized that the ethical standards which have been maintained and defended by the medical profession throughout the centuries have been and remain among the greatest safeguards to the public health in that they tend constantly to improve the quality of medical practice, to discourage dishonesty, charlatanism, quackery. undue personal ambition, destructive competition, commercialism and other undesirable influences.

In 1883 the Journal of the American Medical Association was established. This journal, published weekly, with a circulation in excess of 120,000, is now acknowledged to be the leading medical journal in the world. It is the official spokesman for the organized medical profession of the United States. In addition to The Journal, the American Medical Association publishes monthly journals dealing with the following subjects: internal medicine, diseases of children, neurology and psychiatry, surgery, dermatology and syphilology, otolaryngology and occupational medicine. These were established at various times between 1909 and 1945.

In 1899 the American Medical Association established its scientific exhibit which has now grown until it furnishes what is probably the outstanding feature of the annual Scientific Assembly and is probably not surpassed by any scientific exhibit anywhere. The Council on Scientific Assembly was established in 1915 to take charge of the annual Scientific Assembly, including the Scientific Exhibit. This offers to the medical profession of America a rich and varied scientific program and through the benefits conferred upon physicians, it reacts to ever widening circles to the benefit of the patients of those doctors.

In 1904 the Council on Medical Education and Hospitals began its work of conducting a clearing house for information concerning medical education and hospitals. The classifications of medical schools and of hospitals have resulted in putting medical education in the United States on a very high plane. There are at present 77 recognized Class A medical schools in the United States and 10 in Canada. Very few inferior schools are able to operate because students naturally choose good schools if they are informed about them. Hospitals are also classified with respect to their acceptability for internship and for residencies and fellowships in specialties.

COUNCIL ON PHARMACY ORGANIZED IN 1905

The Council on Pharmacy and Chemistry was organized in 1905 to investigate and report on medicinal products offered to physicians for their use. Through this council numerous investigations have been made and reports published in The Journal. Since 1909 the council has published annual volumes on proprietary medicinal preparations which enable physicians to know what drugs they are prescribing and the character of proprietary preparations which are offered them.



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Fellow of the American Psychiatric Association

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BACKGROUND

OVER THREE DECADES OF CLINICAL EXPERIENCE

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THE EARLY CHARACTERISTICS OF CERTAIN CHRONIC DISEASES

REGINALD FITZ, M. D.
Boston

No New Englander can deliver a Jerome Cochran Lecture before the Medical Association of the State of Alabama without feeling a strong sense of pride. Thirty-five years ago Dr. Maurice H. Richardson spoke about the elimination of preventable disasters in surgery; twenty-seven years ago Dr. Henry A. Christian outlined the treatment of Bright's disease; twenty-three years ago Dr. James S. Stone discussed abdominal diagnosis in children; and ten years ago Dr. Frank H. Lahey spoke on cancer of the colon and rectum. These are the only names from Massachusetts on the roster of Cochran lecturers; to be selected this year as the fifth Bostonian to be added to this distinguished list is a compliment of which I am deeply sensible.

As is well known, Dr. Cochran, on the whole, was less concerned with private medical enterprise than with public health. Therefore, in attempting a lecture in his honor, it has seemed to me only proper to choose a topic which might have had some appeal to him; with this idea in mind I have decided to offer as my subject a consideration of the early characteristics of certain chronic diseases. So broad an aspect of medicine has public health implications which might have interested him, and at the same time it deals with an important medical riddle which has received but little consideration from practitioners; its correct answer promises to be found by the careful every-day study of patients.

Jerome Cochran Lecture, delivered before the Association in annual session, Birmingham, April 15, 1947.

The character of medical practice changes from year to year; new methods of disease prevention or of diagnosis or of treatment tend to wipe out the severity of certain illnesses but others take their place with endless regularity. An aphorism which Dr. Oliver Wendell Holmes stated a century ago is undeniably true:

> "If one great truth defies the skeptic's scorn
> That truth is this—that children must be born;
> If one great maxim man dare not deny,
> That maxim is—that mortal man must die."

Part of the change that has taken place recently in the character of the practice of internal medicine can be described in a few words. The prevention of typhoid fever, the suppression of tuberculosis and syphilis, the improvement of surgical and obstetrical technics, the discovery of insulin, liver extract and chemotherapeutic agents like the sulfonamide drugs and penicillin have combined to create a differently aged population than existed only a few years ago. Nowadays large numbers of people live to grow old who formerly did not survive the hazards of infancy and youth; the result is that prevention of the vicissitudes of old age is occupying an increasingly prominent position in clinical thinking.

There are two diseases which are particularly devastating to an aging population: these are hypertensive cardiovascular disease in one of its varied forms and malignant disease. How best to recognize these disorders and treat them effectively in their early stages is one of the important unsolved difficulties facing clinical medicine today.

In 1850, Lemuel Shattuck, a Boston schoolmaster, suggested that everyone should be encouraged to have his physical condition evaluated from time to time in an effort thereby to promote health and longevity. Eleven years later Dr. Horace Dobell advocated the same idea in England, and in 1900 Dr. George M. Gould again put in a plea for it in the United States. Yet the periodic health examination plan has never gained any strong support from the medical profession. Doctors, on the whole, have been lukewarm to it, incredulous of its value and so far—in my judgment—have failed to grasp its potentialities as a tool for significant clinical research of a very special type.

The method is simple: it entails no more than a history of each case methodically recorded and a complete physical examination of the patient repeated at intervals as time goes on. It need include as a routine only the simplest laboratory work: a serological test for syphilis, urinalysis, examination of a blood smear and estimation of the hemoglobin concentration. Occasionally more complicated procedures will be required, such as x-ray studies or a determination of the basal metabolic rate. Chiefly, it requires a good system of records and follow-up, reasonable clinical judgment, a great deal of patient listening and, above all, in order to make the patients return from time to time, willingness on the examiner's part to assume a vital interest in the life of each person whom he examines.

The results may be important. Enough patients considered to be without disease when they are first examined will inevitably develop either hypertensive cardiovascular disease or malignant disease under observation. They present the only obvious means now available for a critical study of how either of these disorders actually first makes itself manifest.

TABLE 1

THE INSIDIOUS ONSET OF VASCULAR HYPERTENSION IN A WOMAN

Age	Weight (Pounds)	Blood Pressure	Heart	Urine
46	138	140- 80	Normal	Normal
47	139	140- 90	Normal	Normal
50	138	130- 80	Normal	Normal
52	139	150- 80	Normal	Normal
53	145	150- 80	Normal	Normal
55	148	140- 90	Normal	Normal
56	148	160- 90	Normal	Normal
57	147	160- 90	Normal	Normal
59	141	180-100	Normal	Normal
60	146	170-100	Normal	Normal
61	147	200-100	Normal	Normal

Hypertensive cardiovascular disease seems usually to begin with baffling insidiousness. All that happens is that little by little the blood pressure level tends to rise as the patient grows older.

Many individuals bear the aging process with all possible dignity. They may develop peripheral vessels which grow to feel like pipe-stems but they acquire only a moderate degree of hypertension, no urinary abnormalities, no cardiac hypertrophy, no changes in mentality, and only a gradual loss of weight. They seem fated, like Dr. Holmes himself,

"Not feeling the weight of the years as they fly,
To simply stop living when ready to die."

TABLE 2

THE DIGNITY OF THE AGING PROCESS IN A MAN

Age	Weight (Pounds)	Blood Pressure	Heart	Urine
74	195	160- 80	Normal	Normal
77	193	140- 80	Normal	Normal
79	190	160- 80	Normal	Normal
81	186	170- 90	Normal	Normal
84	185	170- 80	Normal	Normal
90	170	160-100	Systolic murmur Auricular fibrillation	Trace of albumin

Everyone cannot establish so admirable a record. A man at his work may have what he thinks is an acute attack of indigestion and this may prove to be a fatal coronary thrombosis. His family has good reason to suspect medical ineptitude and to wonder how it happened that a person told by his physician very recently that he was in good health could have so frail a hold on life. Cerebral vascular accidents may occur unexpectedly. Hypertension beginning as a benign affair may suddenly change its character and become rapidly fatal, the heart may become diseased and fail, or angina pectoris with its plaguing discomfort may supervene.

From the viewpoint of one who is primarily interested in attempting to lessen the handicap of time, the most appropriate treatment of early vascular hypertension is difficult to determine. Basic principles of watchful waiting, with weight control, proper diet, adequate rest, recreation, and freedom from worry, are easy to postulate but accomplish relatively little. In prop-

erly selected cases the surgical approach promises to be of more positive value.

Three forms of operative treatment are now available. Nearly twenty-five years ago Dr. Charles H. Mayo proved that the removal of a medullary tumor of the adrenal gland can do away with paroxysmal hypertension, and a few months later Rowntree and Adson began to explore sympathetic neurectomy as a therapeutic means. In 1938, Goldblatt stimulated search for individuals whose hypertension depends upon a unilateral renal lesion with ischemia; for he demonstrated the curability of elevated blood pressure from such a cause.

Not many cases like Dr. Mayo's have been reported. If a patient with hypertension is encountered, however, whose blood pressure level changes suddenly and in paroxysms from levels of 130 or thereabouts to 280 or 300, a tumor such as Dr. Mayo described seems worth looking for.

The original paper of Rowntree and Adson has fostered a large literature, so that the surgical attack against hypertension through the sympathetic nervous system has become popular. The results are difficult to evaluate because most internists are careful to suggest to their surgical brethren for this type of procedure only patients whose hypertension has produced no measurable damage—no cardiac hypertrophy, no eye-ground changes, or impairment of renal function as judged by most delicate tests—and they tend to get along happily for many years without any very elaborate therapy. Nor have any operated on successfully been followed afterwards for the requisite length of time to convince a reasonable doubter that immediate and dramatically pleasing effects are permanent.

Two patients have made a deep impression on my mind. The first, a woman, was discovered to have hypertension when she was twenty-six years old. This was accompanied by uncomfortable and prostrating ing headaches which she put up with for four years. Her blood pressure was then 200 systolic over 130 diastolic. Dr. R. H. Smithwick performed an extensive sympathectomy. The blood pressure at once fell to 120 systolic over 80 diastolic; a year later it was 140/90, and today—eight years after the operation—it is 130/80. In the meantime she has felt entirely well and has had no further trouble.

The second patient, also a young woman, began to have headaches when she was twenty-four years old. I first saw her five years later. The behavior of her blood pressure is recorded.

TABLE 3
THE IMMEDIATE EFFECT OF SYMPATHECTOMY

Age	Blood Pressure		Remarks
29	140- 80		Headache
33	180-100		Headache
34	180-100		Headache
35	180-100		Headache
37	190-100		Headache
38	220-100		Headache
39	220-110		Headache
	Operation		
39	140- 80	No	Headache

During the ten-year period of preoperative study she developed no cardiac hypertrophy or electrocardiographic evidence of heart disease, and no renal or eye-ground changes. She tried everything in the way of treatment that my mind could devise.

Dr. Smithwick operated on her so short a time ago that the postoperative follow-up is unimpressive. Yet the patient feels like a different person and already is glad to testify that the few weeks of subjective relief which she has enjoyed after her operation more than make up for the temporary discomfort which she suffered at the time of its performance.

A doctor needs to observe only a few patients like these in order to be satisfied that hypertension is influenced by the sympathetic nervous system. Presumably, surgery in this direction—if it has any effect—fails to reach the cause of the condition and is only a palliative measure just as is thyroidectomy for hyperthyroidism. Perhaps, however, through the means of surgical research on the sympathetic nervous system is being opened a new chapter in the history of hypertensive cardiovascular disease; it seems worth studying carefully as the pages unfold and with an open mind.

To recognize a Goldblatt man—one with a unilateral renal lesion producing hypertension—may prove difficult though more have been described than have patients with hypertension—producing tumors of the adrenal medulla. The single case which I have been fortunate enough to identify behaved in the following manner. The patient

was a man forty years old when he first came under my observation. No record was obtainable in regard to when his blood pressure level became elevated.

TABLE 4
THE EFFECT OF NEPHRECTOMY ON BLOOD PRESSURE IN THE PRESENCE OF A UNILATERAL ATROPHIC KIDNEY

Age	Blood Pressure
40	200 - 130
41	170 - 100
42	180 - 130
Operation	
43	110 - 60
45	120 - 80

The kidney which was removed weighed only thirty grams and showed a mixture of chronic nephritis and pyelitis. The immediate effect of its removal on blood pressure was remarkable; one cannot be certain, however, that the remaining kidney was normal in spite of its apparent functional perfection at the time of operation so the ultimate result of the undertaking is unknown.

These cases are mentioned to emphasize my belief that hypertensive cardiovascular disease usually begins so gradually and slowly that its exact time of commencement cannot often be measured. It tends to follow a leisurely course so that each case observed early can be studied deliberately without losing anything. Immediate relief of the physical sign of hypertension and some of its symptoms can be obtained by three different types of operation in properly selected cases: on the adrenal gland, on the sympathetic nervous system, and on the kidney. None of these operations are likely to be successful in the late stages when the damaging results of long-continued high blood pressures are apparent. The early recognition of hypertensive cardiovascular disease is important because treatment by surgery—if surgery is to be attempted—should be used early. In certain instances surgery seems to give hope that the weight of later complications can be lightened though more experience than is now available must be obtained before much positive assurance can be offered.

Malignant disease has a different story; its early recognition is much more difficult and its course is likely to be more rapid. In 1942, Dr. Christian presented a paper at the meeting of the Association of American Physicians which he called "Some Observations, Largely Pessimistic, on the Early Diagnosis of Gastric Cancer." In his opinion the early recognition of cancer of the stomach was almost impossible by any means then available. X-raying of patients with indefinite gastro-intestinal symptoms—nowadays almost a routine procedure—had discovered no cases and the early presence of gastric cancer was rarely found by exploratory laparotomy. His pessimistic viewpoint in regard to the possibilities of early diagnosis was concurred in by such eminent and experienced clinicians as Dr. Julius Friedenwald of Baltimore and by Dr. Emanuel Libman of New York.

The situation has not changed during the intervening years; patients with advanced carcinomatosis turn up in doctors' offices more frequently than do patients who offer reasonable chance for cure. The reason for this probably depends upon a fact which Dr. Friedenwald suggested in his discussion of Dr. Christian's paper: any growth may assume considerable proportions in almost any part of the body without producing physical discomfort of which the patient is conscious. The result is that patients who develop cancer under observation of a periodic health examiner often seem to do so with disconcerting abruptness.

Patients who themselves notice a superficial tumor on some part of their bodies are likely to be the most fortunate—those, for example, who notice a lump in a breast, or a sarcoma or epithelioma in the skin—while the unluckiest are those with hidden lesions able to grow, as Dr. Friedenwald said, without producing symptoms until they are far advanced. Sir William Osler once remarked that there was no disease more conducive to clinical humility than aneurysm; the same words too often can be applied to cancer.

A patient with diabetes was first seen when she was 55 years old, her diabetes making her, among other reasons, especially solicitous for adequate medical supervision so that ample opportunity was afforded for the study of her cancer during preclinical stages. For many years she had been bothered with chronic constipation and a gaseous type of indigestion and thus from the outset interest was focussed on her gastrointestinal tract.

As a diabetic she proved an admirable performer, and for nine years under systematic diet her bowels behaved normally. Then, when she was sixty-four years old, her bowels again be-

came capricious with intermittent diarrhea and constipation and more gas. There was no loss in weight, rectal examination was negative, and a barium enema failed to show any abnormality.

Once again, strict regulation of diet calmed things down and, as she reported at regular intervals, she felt well for another nine years. Shortly after her seventy-third birthday she said that she was feeling well: she had gained four pounds during the previous seven months and was leading an active life. Four months later, however, she returned, having lost fourteen pounds in weight. All she could say was that her appetite had disappeared about a month previously and that her bowels had become badly constipated, causing a gripey lower abdominal pain when they moved. She presented a hard irregular mass at the recto-sigmoid juncture and another in the right upper quadrant. At the time of operation the carcinoma proved to have extended through the wall of the bowel and to have involved the liver.

This case is a good example of the ineffectualness of periodic examination in an early diagnosis of cancer. From whatever viewpoint the patient's record is studied no light is thrown on how the carcinoma might have been recognized earlier or how or when it began; until it produced symptoms it was undiscoverable and by then it was hopelessly advanced.

A woman forty-six years old came under observation because of a duodenal ulcer—a disease which tended to produce symptoms periodically and to make her seek medical advice frequently. Five years previously Dr. John Homans had removed her left breast for carcinoma which proved, on histologic examination, to have extended to a regional lymph node—a fact which would make any physician continually on the lookout for the development of neoplastic disease in some part of her body.

She was examined at least twice a year for the next twenty years.. She finally developed an ovarian neoplasm which by the time it was recognized was scattered throughout the peritoneal cavity.

This patient also demonstrates how difficult it may be to detect early carcinoma. The complaint which led eventually to the diagnosis was generalized abdominal soreness, differing in character from the discomfort with which the duodenal ulcer had made her familiar. The new symptom appeared to be of only a few weeks' duration; it did not develop, presumably, until there was peritoneal involvement and by that time the opportunity for early diagnosis was gone.

A man fifty-five years old had sudden vomiting of blood. Physical examination of the abdomen was negative. Two gastro-intestinal x-ray series, one made at the time of the hematemesis and one four months later, failed to reveal any cause for bleeding. The episode was not repeated. Indeed a few weeks after it the patient claimed to feel as well and vigorous as ever.

About a year later, after dining out, he had an acute attack of painless diarrhea. Within a day or two he noticed that he was jaundiced and within three weeks he presented a tumor mass in the region of the liver and gallbladder, infiltration around the umbilicus, and a mass in the rectal shelf. Death occurred three months after the jaundice was first noted.

This case demonstrates that malignant disease may appear to commence acutely and to run a very rapid course. Numerous variants of these three cases could be assembled from the records of any group of practitioners. They reveal the ugly phase of the cancer problem.

Fortunately, there is another side to the picture. Certain types of malignant disease can be recognized early and can be treated successfully. And every physician will be heartened from time to time by encountering a patient such as one who entered the Peter Bent Brigham Hospital eighteen years ago.

He was sixty-five years old, an intelligent, hard-working machinist. About two months previously he began to have dyspepsia so that he no longer enjoyed eating. His physical examination was negative but the x-ray revealed a large defect near the pylorus. Dr. Francis Newton performed an operation, finding a fungating carcinoma on the posterior wall of the stomach and enlarged lymph nodes along the lesser curvature. He was able to resect the growth and about half of the stomach.

The patient made an uneventful recovery and now at eighty-three continues to be an intelligent, hard-working citizen, setting a good example to all who come in contact with him. He has had no indigestion since his operation and, as judged by physical examination and x-ray, no recurrence or metastasis of his tumor.

To my mind, even a single case such as this offers hope that gastric cancer can become a curable disease and that some time a way will be discovered to bring about so good a therapeutic result more regularly. Early diagnosis, however, and more detailed knowledge concerning the true life cycle of the disease and the circumstances leading to its development will always be needed regardless of improvement that may be made in its treatment when once it has become established.

Mr. Shattuck had a reasonable idea when he suggested that health and longevity

might be promoted by periodic physical examination. It seems strange that doctors have been slow in developing it. Admittedly, so little is now known of the mode of onset of two such common and disabling diseases as hypertensive cardiovascular disease and cancer, and many others of unknown origin which are relatively chronic, that to expect much in the way of modifying their course is unsound. Yet periodic examinations afford means for the clinical study of the beginning of these diseases and for acquiring knowledge essential to a sound basis for their most helpful management during their early stages.

To use the method of periodic examinations to full advantage requires the continued and painstaking observation of large groups of persons over long periods of time. No one physician working alone in such a field during his lifetime can expect to add more than a fragment of the knowledge obtainable. Doctors working together might accomplish much more.

This point of view might have attracted Dr. Cochran's sympathy. A State Medical Association designated by law to assume the responsibilities of its State Board of Health is in a strong position to carry forward intelligently planned efforts to improve general welfare. A campaign to encourage repeated, properly conducted physical examinations with adequate follow-up on those who are examined, initiated by physicians in their capacity as Health Officers and developed on a state-wide basis, promises to yield worth-while results important to everyone. The Medical Association of the State of Alabama has already achieved unique distinction from Dr. Cochran's labors. May it continue to treasure his memory and to reap new fruits from seeds of his planting!

CYSTIC DISEASE OF THE LUNG

A COLLECTIVE REVIEW

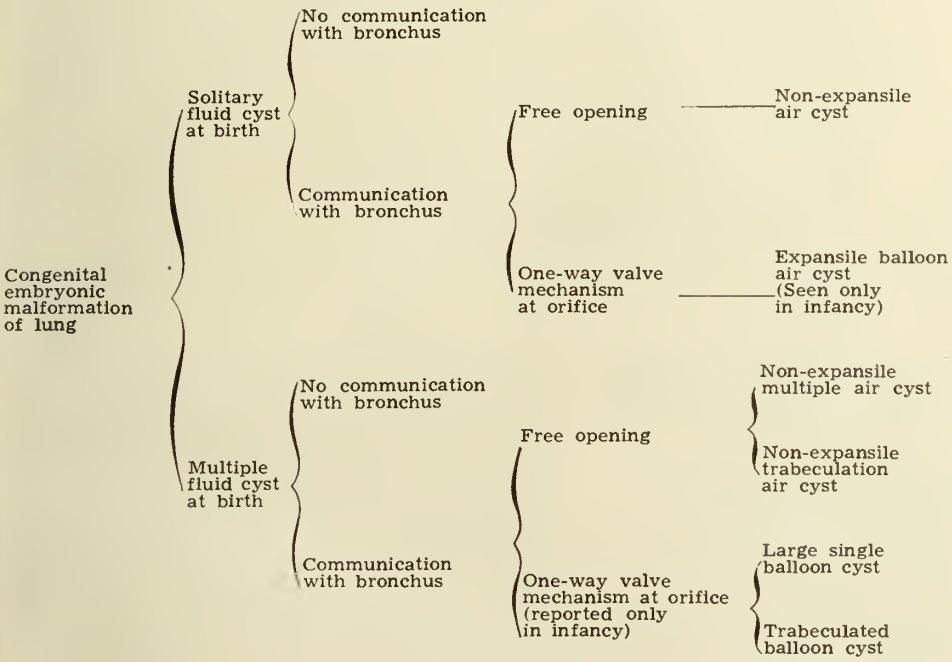
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The problem of cystic disease of the lung is assuming a more and more important place in medical literature. With a clearer conception of the disease process, what symptoms and physical findings are produced by the disease, and the findings of various diagnostic procedures performed to establish the diagnosis of this disease, the proper recognition and treatment of this disease should be much easier and better. In this communication there has been no effort made to tabulate all the cases reported in the medical literature but a review of the pertinent facts regarding the disease has been done and an effort made to clarify some of the controversial points that appear in the literature. Since Bartholinus first described the disease in 1687, many papers have been written on the subject. However, between the time of the original description and that of Koontz in 1925, few references are seen to this disease because of the varied terminology used by men writing on the subject now known as cystic disease of the lung. These papers usually contained material about definite types of conditions generally referred to as congenital or gas cyst of the lung. Fantanus actually first reported the disease in a communication to Cl. Plempius and this report was referred to in Bartholinus' case report. Myers then described the disease in 1858. Sharpe[1] called attention to the fact that medical literature is relatively sparse on the subject. Laennec, Sir Thomas Watson, Matthew Baillie, Bonet, Fagge, Virchow and others gave descriptions of this disease but it was referred to by them as "vesicular" or "hypertrophic pulmonary emphysema." In studying the disease process which has been designated by such a variety of terms as has cystic disease of the lung, it is well to consider all of the terms used in the literature to designate the disease. Cystic disease has been referred

1. Sharpe, Chas. Tilley: Congenital Cystic Malformation of the Lung, Formerly Known as "Vesicular" or "Hypertrophic Pulmonary Emphysema" Recently Described as "Congenital Cystic Disease of the Lung," Radiology 34: 692, 1940.

to in medical literature as acquired bronchiectasis, bronchiectatic atelectasis, fetal bronchiectasis, agentic bronchiectasis, focalized emphysema, saccular degeneration of the lung, congenital cystic malformation, honeycomb lung, pneumatocele, and solitary congenital cyst of the lung. Because of this variety of descriptive terms, it is thought well to call attention to the basic underlying pathologic and pathologic physiology, its developmental background, the mechanics which perpetuate the disease, the symptoms, physical findings, laboratory findings, and the accepted methods of treatment of the process which has received so many various titles.

The process has been variously classified but the most frequently referred to classification is that of Anspach and Wolman.[2] They classify the disease as follows:



It is seen from their classification that they consider the disease more from a mechanical than from a pathologic viewpoint, and make no effort to distinguish between congenital and acquired cystic disease. Their classification deals entirely with congenital embryonic maldevelopment of the lung.

Saxby Willis and Almeyda[3] recently classified this disease as follows:

A. Alveolar cysts (air containing)
  1. Pneumatocoele or solitary alveolar cyst
    a. Non-expansile pneumatocoele
    b. Expansile or giant pneumatocoele
  2. Cystic emphysema or multiple alveolar cysts
    a. Diffuse cystic emphysema
    b. Localized cystic emphysema

B. Bronchial cysts (air or fluid containing)
  1. Pneumocyst or solitary bronchial cyst
    a. Non-expansile
    b. Expansile
  2. Cystic bronchiectasis or multiple bronchial cysts
    a. Diffuse cystic bronchiectasis
    b. Localized cystic bronchiectasis

    Both of these varieties comprise:
      1. Sponge type
      2. Berry type
      3. Honeycomb type

In my opinion this classification is, from a clinical standpoint, the best thus far offered on this disease. They further divide the disease into congenital and acquired forms and make a definite distinction between the two with the following characteristics of each disease:

2. Anspach, W. E., and Wolman, I. J.; Large Pulmonary Air Cysts of Infants, Surg., Gynec. and Obst. 56: 635-645, 1933.

3. Willis, F. E. S., and Almeyda, J.: Cystic Disease of the Lung (Bronchio-Alveolar Cyst), Tubercle 24: 27-36; 43-58, 1943.

	Congenital	*Acquired*
Clinical History	Onset in infancy	Following infection, trauma or tumor
Symptoms, Physical Examination	Chronic from infancy, chronic bronchitis, emphysema, or bronchiectasis	Acute in onset and progressive, marked by causative factor
X-Ray	Annular shadow with well-defined outline	Curved or ovoid with thin pencil-like outline
Serial Picture	Stationary character of the annular shadow	Variable outlines of gas pockets
Tomography	Cyst space may be seen at 3, 5, 7, and 9 cm.	Spaces seen only at 9 and 11 cm.
Bronchography	Bronchi normal leading to and filling cyst	Variations in bronchial lumen, and cyst seldom fills
Bronchoscopy	Normal lumen with fluid secretion	Lumen distorted and filled with pus, blood, or necrotic material
Thoracoscopy	Absence of pigment on pleural surfaces	Pigment present
Histopathology	Disorderly growth but no degenerative changes and made up of elastic tissue, connective tissue, muscle, cartilage and epithelium	Degenerative and inflammatory changes
Secretion	Mucosal	Nil or that of an inflammatory exudate
Pleural Adhesions	None	Marked

They further classify cysts giving the characteristics of each into cysts of alveolar and of bronchial origin as follows:

Alveolar

Epithelium flat to cuboidal and without cilia
No cartilage or muscle coat in stroma
Absence of further alveolar parts of the acinus which may be regarded as continuaton of cystic dilated bronchus
Marked alteration of elastic tissue due to congenital weakness
Non-inflammatory sclerosis seen; this is an attempt to build up a supporting frame work for the lung

Bronchial

Epithelium columnar and ciliated
Partial absence of muscle and cartilage in stroma
Presence of atria, alveoli and ducts
Elastic tissue increased but has erratic arrangement
Non-inflammatory sclerosis not seen

Pierce and Dirkse[4] state that true congenital cysts are rare and they classify the disease as follows:

A. True congenital pulmonary cyst or cysts
B. Chronic interstitial pneumonitis with emphysema
C. Chronic bullous emphysema
D. Cystic bronchiectasis
   1. Focal acute lobular emphysema
   2. Saccular to cystic bronchiectasis
   3. Peripheral bullous emphysema
E. Pulmonary pneumatocoele (localized alveolar or lobular ectasia)

4. Pierce, Carleton B., and Dirkse, Paul R.: Pulmonary Pneumatocoele (Localized Alveolar or Lobular Ectasia), Radiology 28; 651-667, 1937.

In discussing their classification they state that it is rare to find fluid-filled and air-filled cysts in the same lung and point out that the air-filled cyst would have had to rupture and empty its fluid and then become filled with air. They do not believe that this could be so universal as the finding of such a high percentage of the cysts which contain only air would indicate. In their experience, congenital cysts have been observed usually associated with other abnormalities or with aberrant lung tissue. In chronic interstitial pneumonitis with emphysema there may be interstitial changes with bronchopneumonia or progressive fibrosis which may have induced enough contracture to affect an alveolar emphysema which may become cystic in proportions. These rarely show retained secretions or exudate. They tend to be lobular or unilateral in distribution. Chronic bullous emphysema, as develops in asthmatics due to expiratory obstruction by bronchospasm, can be seen in x-ray. Fibrosis of interstitial tissue accompanies this development. This is generalized and produces such effects as flattening of the diaphragm, and other signs of emphysema. Cystic bronchiectasis is a frequent occurrence due to its being the sequela of necrosis of bronchial or bronchiolar walls associated with abscesses arising in these structures. Rupture of the al-

veolar walls, with the production of an interstitial emphysema, may occur affording an opportunity for air to dissect along the septa during coughing, leading to the formation of subpleural blebs. With bronchial infection, interstitial infection, and intra-alveolar infection, the resulting lesion is lobular in type. The peripheral alveoli may be affected secondary to changes in bronchi or bronchioles obstructed by exudate. These tend to become confluent and result in saccular cystic bronchietasis by means of damage to bronchial or bronchiolar walls, or the focal acute lobular emphysema results from resolution in or repair to the proximal airways to a segment of lung tissue, or peripheral bullous emphysema resulting from the rupture of the bronchial walls which permits the escape of air into the interstices of the lung thereby producing large bullae. They have had patients who have been known to have normal lungs at one time only to find later a typical cystic bronchiectasis, and they state that, if the cysts are congenital, they should have little or no pigment in or about their wall and in a number of their cases this pigment was present. In pulmonary pneumatocele there may be a single or a few contiguous grossly emphysematous alveoli which may continue to expand and become masses. They may be alveolar or lobular because of a singular or multilocular character of some of the lesions found. These develop as a result of lobular emphysema associated with lobular pneumonia and a persistent check-valve mechanism obstruction to the bronchial lumen with non-resolution or subsequent distortion of the dilated air spaces. These are the type cysts that others have called congenital but they have cases in which films demonstrate normal lungs only later to find that this condition has developed. In these patients, frequent respiratory infections have been noted, and in cases observed by them, these infections have been in the lung tissue intervening between the dilated air spaces, and the dilated air spaces have been unusually clear of evidence of infection such as retained secretions or irregularities of their walls. Pierce[5] states that cystic changes in the lungs are due to a "minor degree of bronchitis and a major degree of bronchopneumonia." He states that, in the alveolar or lobar pneumonia, there is no involvement of the bronchial or bronchiolar walls to obstruct the evacuation of exudate from the alveoli. This is not true in bronchopneumonia. In this condition the perivascular lymphatics spread to the perivascular connective tissue resulting in an inflammation in the alveolar septa, pleura, and lung root. Thrombosis of blood vessels accompany the interstitial inflammation and may induce further necrosis and suppuration of bronchial walls by the production of infarcts.

That such a condition is described by Pierce and Dirkse[4] could be the basis for cystic formations in the lung is pointed out by Kessel,[6] who, in a series of patients, showed that at the time of resolution of lobar pneumonia a definite cavity associated with no sputum may be found. These occur in the areas of infiltration and are probably on a thrombotic basis during the stage of hepatization of the lung. The cavities do not communicate with the bronchus and may persist for some time after all symptoms of pneumonia have disappeared. He points out that the thrombotic basis for development of these cavities is favored by the pulmonary compression exercised by the exudate of the pneumonic process, the increased coagulability of the blood during the pneumonia, the lowering of the blood pressure during the disease, and the myocardial failure with slowing of the circulation, and because of compression of the capillary bed in the lungs.

In the detailed study of patients with cystic disease, Dubrow[7] adds evidence to Anspach and Wolman's[2] idea that these cystically dilated bronchi and alveoli due to developmental defects form a closed system or systems wholly or partially discontinuous with the main bronchi. He[7] could not get any lipiodol into any of the cysts which he studied.

In the discussion of the classification of this disease, it is well to remember, as Santa[8] pointed out, that the definition of the

5. Pierce, Carleton B.: "Cystic" Disease of the Lung, Am. J. Roentgenol. 44: 848, 1940.

6. Kessel, Leo: The Clinical Aspect of Aputrid Pulmonary Necrosis, Arch. Int. Med. 45: 401-411, 1930.

7. Dubrow, James L.: Congenital Cyst of the Lung, Radiology 24: 480-488, 1935.

8. Sante, L. R.: Cystic Disease of the Lung, Radiology 33: 152-165, 1939.

word cyst means "an abnormal sac resulting from a partial or complete occlusion of a secretory glandular structure," and that by definition the vast majority of air-filled cavities do not fall into the category of cyst. They should, as he stated, be called pneumatoceles and may be of a number of varieties. They may be solitary, expansile, multiple emphysematous, or multiple bronchiectatic. In this disease, grouped under the one title of cystic disease of the lung, it is apparent that there are multiple causative agents producing the disease. As Eloser has stated, "There is no doubt of the congenital origin of solitary, fluid cysts of the lung, but there is much doubt as to the congenital origin of many of the air containing cysts." Sauerbruch[9] has stated that 80% of single lobe bronchiectasis in childhood is due to congenital defects in the bronchi. Rigler[10] reported a case of a cyst following staph. pneumonia. McCartney[11] reported a case of multiple cysts, the bronchus leading to one of them containing a timothy grass seed without a history of aspiration. This, a cystic formation, was considered as probably the result of the bronchial obstruction by the foreign body. In Rigler's case no lipiodol would enter the cyst and it remained without change in the surrounding lung for a period of time and was designated by him as a pneumatocele. Maier,[12] in considering this disease, states that a cyst can result from a congenital developmental anomaly, destruction of the pulmonary tissue by inflammatory processes and hyperinflation of small defects in the pulmonary parenchyma, or a combination of these three factors. From a review of the literature there is little doubt that this statement is the correct one, but the type of cyst present will be governed by the causative factor.

In referring to congenital cystic disease of the lung, it is well to review the embryology of this organ.[13] The lung develops as a groove-like invagination on the ventral side of the esophagus of the three millimeter embryo. From the enlarged posterior end of the groove, two small lung buds grow out. Later the esophagus and trachea become separated by a constrictive type of interruption at the cephalic end of the larynx; this is distinguishable at the end of the fifth week. Muscle and cartilage rings arise from mesenchyme at the end of the 7th week. Later, hollow invaginations grow out into the envelope of connective tissue. They enlarge and continue to branch and form the tubular system. The alveoli arise as small outgrowths from the fine terminal tubules. Hurwitz and Stephens[14] state that congenital cysts are usually due to developmental errors of endogenous origin, perhaps primary in the pulmonary vascular tree. Palmer,[15] in a study of 180 millimeter embryos, found that mucous glands appear after the fifth generation, cartilage disappears after the seventh and the epithelium becomes simple in the eighth and cuboidal in the eleventh generation. Cilia appear no more after the tenth generation of the bronchi. With this type of developmental process, it is easy to see that cysts arising during the various stages or generations of bronchial development may contain different materials, both in their lumen and in their walls.

Mueller[16] states that the lungs develop from invaginations of larger bronchial branches. These show enlargements of the advancing ends of the pouches with indentations or foldings of the end of the sacs which lead to divisions of the bronchus. Further divisions follow the same pattern leading to a complete development of the lung structure. He and Chadowska[17] state that malformations may occur at any point during the developmental process. It may be arrested at the larger bronchial branches, giving rise to multiple pneumatoceles. This is the congenital bronchiectasis. Its growth may be suspended only to recur again leading to partial or complete atresia. Subse-

9. Sauerbruch: Quoted by Schenck.

10. Rigler, Leo G.: In the discussion of Morse's paper.

11. McCartney: In discussion of Morse's paper.

12. Maier, Herbert C.: Pulmonary Cysts, Am. J. Surg. 54: 68-81, 1941.

13. Arey, L. B.: Developmental Anatomy, 6th ed. Philadelphia, W. B. Saunders Co., pp. 231-239 (Vol. 4).

14. Hurwitz, Samuel, and Stephens, H. Brodie: Agenesis of the Lung, Am. J. Med. Sc. 193: 81-87, 1937.

15. Palmer, D. M.: The Lung of a Foetus of 170 Mm. C. R. Length, Am. J. Anat. 58: 59, 1936.

16. Mueller, H.: Handbuch der Speczіellen Pathologischen Anatomie und Histologie, first edition, Berlin, pp. 531.

17. Chadowska, S.: Kasuittische Beitrage Zur Kenntnis der Wabenlung Virchow's, Arch f Path. Anat. 301: 746-751, 1938.

quent secretions of the lining membrane, which is epithelium, may produce a fluid cyst. This may later empty into a bronchus and become filled or partially filled with air. If a check-valve mechanism forms, an expansile type of cyst will develop. The anomalous development may occur in the terminal branches beyond the points of mucinous secretion, resulting in a large pneumatocele. The so-called "honeycomb lung" is one containing multiple thick-walled cavities which fill on oil studies and communicate directly with the larger bronchial branches, and their cavities are merely the rounded ends of blind pouch-like invaginations. These have been variously called multiple bronchiectasis, pneumatocele, or congenital bronchiectasis. They result from arrested growth or development at the invaginating stage of the larger bronchial buds. These are not associated with fibrosis and on infection they become essentially bronchiectasis. They further state that fluid cysts may occur at any location but are frequently near the hilum of the lung. They usually, in time, discharge their contents into a bronchus. They are persistent, showing little change over a long period of time. Grawitz[18] believed that congenital cyst of the lung is due to some type of intrauterine inflammatory process. Pepere[19] and Bard[20] state that congenital cysts are due to a combination of impediment in development with a defective supporting stroma and insufficiently formed elastic element. Stoerk,[21] Dehio,[22] Anspach and Wolman[2] state that bronchial stenosis plays the major role in the formation of large sac-like balloon cysts which are often connected to the bronchial tree by a very narrow lumen. Pollock and Marvin[23] state that cysts are a result of an early maldevelopment due to agenesis in the mid-portion of the developing system of bronchi, and bronchiectatic cystic disease in which there are numerous small cystic areas located peripherally is due to arrested development late in fetal life after the small terminal bronchioles have appeared but before the formation of pulmonary alveoli. Cystic bronchiectasis occurs after the large and medium-sized branches have developed. The pathologico-anatomic features favoring the congenital origin of these cysts are: the lack of pigment in the involved portion of the lung, the regularity in shape and distribution of the saccular dilatations and their communication with the bronchial tree, and the lack of inflammatory changes in the lung. Clinically, there is a disproportion between the symptoms and anatomic findings. The past history of previous pulmonary infections are insignificant and the onset of symptoms can be traced back to infancy. They result in cor pulmonale due to chronic impairment of the pulmonary circulation. Koontz,[24] who is generally given credit for the first detailed description in the American literature, though Pappenheim[25] mentioned a case much earlier than Koontz' article, described in detail his case which was a result of a constriction of the walls of the bronchi with a dilatation of the parts distal to this obstruction and pointed out that such developmental defects had been adequately shown to be true in lower animals. As congenital anomalies occur throughout the body there is no doubt but that similar defects are frequently present in the lungs.

Congenital cysts of the lung are characterized pathologically by presence of remnants of bronchi and the lack of pigment in or about their walls. The walls which are of moderate thickness are made up of muscle fibers, cartilage, mucous glands, and epithelium. Stanford and Nalls[26] state that there is a nomal amount of elastic tissue present in the walls but that this is usually

18. Grawitz, P.; Ueber Angeborene Bronchiectasie Virchow's, Arch. f. Path. Anat. 82: 217-237, 1880.

19. Pepere, A.: Delle Degenerations Cistica Del Polmome, Sperimentale 60: 171-196, 1906.

20. Bard, L.: Pathogenie, evolution et traitement de la forme idiopethique des delitations bronchiogenes, F. de Med. de Lyon 5: 381-389, 1924.

21. Stoerk, O.: Ueber Angeborne blasige Misselbildungen der Lunge, Wien Klin. Wchuschr. 10, 25-31, 1897.

22. Dehio, K.: Ueber Pseudopneumothorax Deretsche, Med. Wchuschr. 51, 817-819, 1925.

23. Pollock, W. C., and Marvin, H. P.: Congenital Cystic Disease of the Lung, Amer. Rev. Tuberc. 27: 59-66, 1933.

24. Koontz, Amos R.: Congenital Cyst of the Lung, John Hopkins Hosp. Bull. 37: 340-361, 1925.

25. Pappenheim: Congenital Cystic Malformation of Lung, Proc. New York Path. Soc., New Series 12: 193-202, 1912.

26. Stanford, W. Raney, and Nalls, Brodie C.: Some Notes on Cystic Disease of the Lung with a Report of One Case, Ann. Int. Med. 17: 65-77, 1942.

fractured. Herrington[27] states that the walls are made up of fibrous and inflammatory tissue. Schenck[28] emphasized the presence of elements normal to bronchial or bronchiolar walls in the walls of the cyst. The lining of the cyst is usually smooth and is lined by a secretory type of epithelium. Churchill and Klopstock[29] believe that all cysts lined by columnar epithelium are congenital regardless of their location and that those containing other types of linings are pneumatoceles or inflammatory types of cyst following abscesses. Womack and Graham[30] report multiple cases in which metaplasia or epithelium have occurred in the cysts of lungs and point out the possibility of an association with this and the development of carcinoma of the lung. Parmelle and Apfelbach[31] state that glandular formations resembling bronchial mucous glands are usually found in the walls of the large cyst. Squamous epithelium due to metaplasia is occasionally seen as the type lining of the cyst. In their cases in which the lining was absent, the wall of the cyst was made of granulation tissue and it was questionable as to whether these cysts could be considered congenital.

Cysts of the lung may contain both fluid and air, depending on the bronchial communications. The bronchial opening may open and close, regulating to some extent the contents. The true bronchial cysts contain fluid due to their lining of secretory epithelium. In cases containing only air, the epithelium is insufficient to produce fluid. Eloser[32] states that the secretions in the cysts are mucoid instead of purulent. Gray and Skinner[33] reported cases in which apparently hemorrhage had taken place into the cysts filling them with a chocolate-like material or serosanguineous fluid. Herrington[27] removed a cyst containing a similar fluid. Smith[34] reported a case with "stones" in the cyst cavity. Freedlander and Gebauer[35] state that a cyst will contain fluid if it develops before the fifth generation of bronchial division as the mucous glands are present through that stage of development. If it develops after this stage of pulmonary development, it will contain air. This is based on the work of Palmer[15] on the structure of the lungs of 180 mm. fetuses. The contents of the cyst may be purulent due to a superimposed infection. These infections come with contamination from the respiratory tract. There is actually a bronchial fistula in the cyst, and strands of tissue covered by a pseudostratified or columnar epithelium traverse its cavity. Biopsies from cysts showing the lining as described above and the presence of these strands are diagnostic of congenital cystic disease of the lung. Maier[12] states that if the inflammatory process has destroyed the lining epithelium, the other components of the bronchial wall will be present. Multiple bronchial fistulas in a large cavity usually mean cysts, but this may happen when an abscess has ruptured into the pleura causing an emphyema. The strands traversing a cavity are usually diagnostic of cyst but he states that multilocular abscesses or tuberculosis with pneumothorax may contain such strands, but if the strands are covered by epithelium it is a lesion in the lung and is located intrapulmonary. If a cavity remains large after being adequately drained, it is a cyst. Kinsella[36] has called attention to the fact that an epithelial lining does not necessarily mean congenital for he has frequently seen bronchiectatic abscesses and tuberculous cavities lined by epithelium.

27. Harrington, S. W.: Surgical Treatment for Intrathoracic Tumors, Arch. Surg. 19: 1679-1725, 1929.

28. Schenck, Samuel G.: Diagnosis of Congenital Cystic Disease of the Lung, Arch. Int. Med. 60: 1-21, 1937.

29. Churchill, E. D., and Klopstock, R.: Lobectomy for Pulmonary Tuberculosis, Ann. Surg. 117: 641, 1943

30. Womack, Nathan A., and Graham, Evarts A.: Epithelia Metaplasia in Congenital Cystic Disease of the Lung: Possible Relation to Carcinoma of Bronchus, Am. J. Path. 17: 645-654, Sept. 1941.

31. Parmelee, A. H. and Apfelbach, C. W.: Congenital Air Cyst of the Lung, Am. J. Dis. Child. 41: 1380,-1388, 1931.

32. Eloser, Leo: In discussing Maier and Haight's paper.

33. Grey, Howard W., and Skinner, Ira C.: Hemorrhagic Cyst of the Lung: Report of two Cases in Which Marsupialization was Done, Surg. 11: 777-787, 1942.

34. Smith, Walter Atmar: Cystic Disease of the Lung, Internat. Clin., New Series 1: 144-152, 1942.

35 Freedlander, S. O., and Gebauer, P. W.: Disease of aberrant Intra-Thoracic Lung Tissue, J. Thoracic Surg. 8: 581-597, Aug. 1939.

36. Kinsella: In discussion of Morse's paper.

He states that, if elastic tissue is demonstrated in sputum or in drainage from a lesion, it is an abscess or some type of destructive process and is not cystic disease. Cysts have thick walls and remain almost constant in size. Necrosis in pulmonary tissue may lead to abscess and these may be distended by air from a communicating bronchus. Thus the size of the cavity is not necessarily dependent upon the amount of necrosis of tissue and may stimulate cysts, but in this type lesion the cavity size usually fluctuates.

Pneumatoceles are hyperinflated pulmonary cavities produced by distention of pulmonary parenchyma and the defect is secondary to interstitial pneumonitis with inflammation of the branch bronchus, producing obstruction causing a check-valve mechanism, the interalveolar septa disrupting or destroying due to tension and inflammation. They have thin walls, no epithelial lining, in most instances contain air, do not contain strands of tissue stretching across the structure and may fluctuate markedly in size.

Pulmonary blebs are collections of air in the interstitial tissue resulting from rupture of the alveoli and dissection of air along the tissue planes of the lung located in the interlobular connective tissue and periphery of the lung. The other general characteristics are similar to those of pneumatocele. These are the structures which so frequently rupture producing a pneumothorax.[37] Rupture of pneumatoceles producing the same thing—pneumothorax—is also a frequent occurrence. There is little or no pleural reaction about cysts, whereas, in inflammatory processes such as emphysema, there is a marked pleural inflammatory reaction with thickening about the infection. Koontz[24] emphasizes the presence of large blebs of emphysematous tissue between the cysts; whereas Sauerbruch[9] stresses the normal lung tissue between the cysts. He states that, if lung infection has been present, there will be a marked fibrosis and evidence of infection will be present in the tissue about the cyst. Though it is generally stated that the pulmonary parenchyma surrounding cysts usually shows very little reaction, Sauerbruch states that there is usually a small amount of evidence of infection surrounding the cysts. Pappenheimer[25] stresses the presence of eosinophils in the chronic type of infection present constantly about the cyst. These have no special significance other than being type cells which are constantly found in any kind of chronic infection.

The cysts are for the most part located intrapulmonary but Eloser states that some solitary cysts have a pedicle attaching them to the trachea or bronchus. Ward and Krohl[38] reported two cases of cyst in the right lung in which there were elements like the stomach in one and like the duodenum in the other. They state that there have been five such cases reported prior to their cases. One of the cases had a definite bronchial communication and the other showed evidence of bronchio-cyst-pleural potency." These are evidently enterogenous pulmonary cysts.

Chandler, Gloyne and Hubble[39] reported a case in which the lung had imperfectly developed but an attempt at necessary lobulation had apparently occurred. The cystic lung had no orderly arrangement of the bronchi or blood vessels and the elongated bronchi extended across the entire lung field without branching. There were no remnants of the bronchi, the walls being made up of fibro-muscular tissue and lined by a ciliated epithelium. This is similar to a condition to which Pollock and Marvin[23] called attention, described as fetal cystic bronchial adenoma or cyst adenoma in which the larger bronchi were well formed but the lung parenchyma was replaced by numerous small cysts and a stroma containing gland-like epithelial proliferations.

It is usually stated that congenital cysts show a lack of anthracotic pigment in or about their walls, whereas, in cysts secondary to infection, this pigment is present. Weaver and Van Hamm[40] reported two cases with the typical smooth wall lining

37. Glickman, L. G., and Schlomovitz, B. H.; Simultaneous Bilateral Spontaneous Pneumothorax Complicating Pneumonicosis, Am. Rev. Tuberc. 34: 390, 1936.

38. Ward, I. M., and Krohl, J. B.: Enterogenous Pulmonary Cyst, Am. J. Dis. Child. 63: 924-933, 1942.

39. Chandler, F. G.; Gloyne, S. R., and Hubble, D. V.: A Case of a Developmental Cystic Lung in An Infant, Tubercle 21: 292-295, 1939-1940.

40. Weaver, R. G., and Van Hamm, Emmerich; Surg. 4: 917-929, 1938.

but with anthracosis in and about the walls. These had cysts in both upper lobes and were multiple. They called attention, as Womack and Graham had previously done, to the fact that this is usually a progressive disease in that the epithelium in both of their cases showed definite signs of active peripheration. The pathologic physiology present in cystic disease depends on the type of cysts present and the factors operating to raise or maintain the pressure in these cysts. Sante[8] states that these factors are tension of the elastic capsule of the cyst and pressure of the surrounding lung tissue. These factors increase until the cyst ruptures and the size of the rupture determines to some extent the future process. If the opening is large, the rupture may be followed by apparent cure. If it is small a cyst remains. Once the cyst has collapsed it reexpands because of the resistance of the cavity wall and the resistance of the normal alveolar structure supplied by a bronchiole of similar size. If the opening is large, with a free passage of air in and out, air should pass in more freely due to the small amount of resistance of the frail cavity wall. The forces of deflation exerted on the cavity would be less pronounced since it would not be subjected to the forces of elastic recoil of its wall until inflation has refilled the cavity to near its original size. From this point forward air exchange should be equal to that of an equivalent amount of lung tissue. The pressure in the cyst should never exceed atmospheric pressure because of the passive manner in which the air enters the cyst. However, if a check-valve mechanism exists, as in cysts with small bronchial openings, the pressure of the mediastinum to the opposite side occurs during expiration. This is a non-expansile pneumatocele or cyst. These may continue to build up pressure and expand until extreme high pressures are created. These are the expansile pneumatoceles or balloon cysts. They may even produce mediastinal herniation into the opposite lung field. These may be due to the presence of an excessory air chamber acting as a vestibule to the main pneumatocele, so arranged that the movements of the chest wall during respiration exert an additional force besides that of the atmospheric pressure which might act as a pump filling the cavity. The bullous type of emphysema which is represented by peripheral pneumatoceles do not have a secreting lining and have a bronchial connection, for, if they did not, they could not maintain their air content.

With the cessation of growth of the bronchi followed by a resumption of growth in these structures associated with the formation of an epithelial lining, a cyst is produced. This begins to secrete until pressure is such that the secretion is prohibited. Tension finally causes rupture into a bronchus causing "pleural vomica" and then is refilled by fluid and air and maybe finally filled only by air.

The symptoms usually associated with cystic disease[41] are cough, dyspnea, cyanosis, cardiac palpitation and, according to Madsen and Prickle,[42] rarely hemoptysis. Head,[43] however, emphasizes that in cysts lined by epithelium hemoptysis is a very frequent symptom. Churchill[44] emphasizes that symptoms usually mean suppuration and are the results of this process. In Rigler's[45] cases there was a repeated history of pneumonia or repeated drainages of collections of fluid without obliteration of the cavity. These things should direct thoughts toward cystic disease. A failure of a drainage operation over a long period of time is characteristic of cysts. The series of events which occur are as follows: the cyst is present and it accumulates fluid. A bronchial communication develops and the cyst becomes infected and then suppuration develops causing symptoms at each stage of the process. Diamond and Durham[46] state that symptoms depend upon the extent of actual loss of pulmonary tissue resulting in dyspnea, and this may be brought about by pulmonary compression or replacement of pulmonary parenchyma by the cystic process. Intracystic pressure causes dyspnea if

41. King and Harris: Congenital Cyst of Lung, J. A. M. A. 108: 274-280, Jan. 23, 1937.

42. Madsen, Vernon H., and Prickle, H. B.: Cystic Disease of the Lung with Iodized Oil Studies.

43. Head, Jerome: In discussion of Maier and Haight's paper.

44. Churchill, Edward D.: J. Thoracic Surg. 6: 286-311, 1937.

45. Rigler, Leo G.: Infected Cyst of the Lung. A Source of Pulmonary Suppuration, Journal Lancet 62: 195-198, 1942.

46. Diamond, Sidney, and Durham, William R.: Cystic Lung.

a ball-valve mechanism is present and egression of air is difficult and the air becomes trapped in the cyst raising the intracystic pressure in the cyst. Out of ten cases they[46] state that six had histories of previous pulmonary infection with tuberculosis in one of the cases. Four were asymptomatic and four had gradual increasing dyspnea. Reisner and Tickertkoff[47] state that symptoms are usually mild, and in cases with symptoms, the physical findings are marked. Seven out of seventeen cases were found on routine films of the chest. One of Wood's[48] cases was associated with marked hemoptysis. Gray and Skinner[33] reported two cases of hemorrhagic cyst of the lung with hemoptysis as the outstanding symptom. Wood and Tirney[49] found 5% of cases associated with tuberculosis.

Schenck[50] collected 224 cases from the literature and in his review of the cases showing the age of the patient when the cyst was found showed that 27 were present at birth, 41 during the first year of life, 38 between the ages of one and fifteen, and 118 were fifteen plus years of age. In 381 cases reviewed by the same author,[28] the order of symptoms was cough, dyspnea, expectoration, cyanosis, fever, hemoptysis and thoracic pain which may be referred to the epigastrium. In this larger group of cases, 36 were present at birth, 57 under one year of age, 68 between one and fifteen years of age, and 207 were fifteen plus years old. Wood,[51] in reporting 48 cases from the Mayo Clinic, found 37 in males and 11 in females. The youngest case in his series was fifteen months of age and the oldest was 79 years of age. Twenty-three (23) of the lesions were in the right side of the chest, 10 in the left side, and 15 were bilateral. Thirty-eight (38) of the cases had symptoms. He mentions acute dyspnea and cyanosis "closely simulating that of pneumothrax" in some of his patients. Eloser says that, with a free bronchial communication, this type of dyspnea will not occur and further states that upper lobe cysts are usually symptomless due to the presence of a bronchial communication and the free drainage from cysts in this position. Regarding fever, Head[43] states that pus in epithelial-lined pockets causes little. As in Wood's cases, Cole and Nalls[52] stress the frequency of pneumothorax associated with this disease, stating that frequent and repeated sudden attacks of dyspnea and cyanosis in infancy should suggest cystic disease. Adams and Swanson[53] call attention to the fact that symptoms in infancy are usually due to disturbed mechanics of respiration with pressure, whereas in adult life they are due to chronic and recurring infections and state that spontaneous pneumothorax in infancy is rarely due to tuberculosis but is unually due to pneumonia, empyema, aspiration of foreign body, or cystic disease of the lung. In Tyson's[54] cases the symptoms were those of recurrent pneumonitis: cough, exaggerated frequently by change of position, expectoration of varying quantities of sputum, hemoptysis, and loss of weight. Treatment is necessary because of complications, such as infections, alterations of mechanical air exchange through connecting bronchus, infection with rupture followed by the formation of a pyopneumothoral expansion of cysts after infection has cleared up, rupture of cysts with the formation of ball-valve mechanism and the formation of a tension pneumothorax or a tension cavity in the lung itself, and rupture of the cyst with the discharge of sterile fluid into the pleural space. Potter and Potter stress the frequency of pneumothorax associated with cysts and, in the author's experience, all cases presented themselves after one to three unsuccessful drainages of collections

47. Reisner, David, and Tichertkoff, I. G.: Cystic Bronchiectasis, Am. J. Roentgenol. 43 327, 1940.

48. Wood, H. G.: Congenital Cystic Disease of the Lung: A Clinical Study, J. A. M. A. 103: 815-821, 1934.

49. Wood, H. G., and Tirney, W. S.: Congenital Cystic Disease of the Lung Complicated by Tuberculosis, Proc. Staff Meet. Mayo Clinic 19: 515-520, 1944.

50. Schenck, S. G.: Congenital Cystic Disease of the Lung, Am. J. Roentgenol. 35: 604-629. 1936.

51. Wood, Harry G.: Congenital Cystic Disease of the Lung, J. Thoracic Surg. 6: 634-637, 1937.

52. Cole, Dean B., and Nalls, Walter L.: Simultaneous Spontaneous Bilateral Pneumothorax: Report of a Recurrent Case Due to Congenital Lung Cyst, J. Lab. and Clin. Med. 24: 147-151, 1938-1939.

53. Adams, William E., and Swanson, W. W; Congenital Cystic Disease of the Lung, Internat. Clin. 4; 205-220, 1935.

54. Tyson, M. Dawson: The Surgical Management of Solitary Cysts or Cyst-Like Structures of Pulmonary Origin, Ann. Surg. 118: 50-75, 1943.

of fluid thought to be in the pleural space, or following the development of a spontaneous pneumothorax.

The physical findings depend on the type of lesion present and usually are those of collections of fluid or other solid masses in the thorax, findings characteristic of pneumothorax, or those associated with atelectasis. There may frequently be very few physical findings and this is emphasized by the large number of cysts found in routine x-ray examination of the chest.

These lesions must be differentiated from empyema, suppurative diseases of the lung (including abscesses), actinomycosis, fungus infections, ecchinococcic cysts; solid tumors, such as teratoma; dermoids, tumors of nerve origin, such as ganglioneuroma and neurofibroma, chondroma, eventration of the diaphragm and diaphragmatic hernia. Included in this list also should be tuberculoma, peripheral carcinoma, and carcinomatous lesions with cavities. It must be differentiated from regional obstructive emphysema of Caffey, interstitial emphysema of Pierce and Dirkse, and aputrid pulmonary necrosis of Kessel.

From the above list it is evident that the type of cyst present determines the lesions from which this disease must be differentiated. Bullae and blebs frequently follow inflammatory disease of the lung and are usually located peripherally. They are associated with emphysema, with the characteristic findings of depression of the diaphragm, widening of the intercostal spaces, increased radiability of the lung and an exaggeration of the lung markings, with a vertical position of the heart. Emphysematous bulla have no delineating walls. In balloon cysts, the pulmonary markings are obliterated, there is a haziness in the apex, and the costophrenic angle is obliterated due to compression of the lung in all directions. The hilar shadows are narrow and elongated. Saxby Willis and Almeyda[3] state that cysts of alveolar origin will produce symptoms like those of emphysema or frequently none at all but the findings will be similar to those in emphysema. To distinguish fluid cysts from empyema, it is well to remember that in empyemas the lesion may be triangular or fusiform, follow the contours of the chest wall, are associated with thickened pleura, and the patient gives a history suggestive of pneumonia, whereas cysts are oval or round in both the posterior, anterior, and lateral views, there are usually no signs of pleural thickening, fine strands traversing the space occupied by the cysts may be seen and, except in balloon cysts, the diaphragm and mediastinum are in normal position, whereas in empyema they may be retracted toward the empyema pocket. In cysts containing fluid and air, they must be differentiated from abscess or an encysted empyema with bronchopleural fistula. Cysts are persistent and without change of size for long periods of time. Empyemas and abscesses may become so completely walled by fibrous adhesions that they show no change for years but this is not the rule.[56] In infected cysts there is usually a somewhat irregular zone of reactive inflammation about it but usually not to the same extent as that associated with abscess.[57] Cysts are thin-walled whereas abscesses usually have a thick wall. The location and shape of the empyema pocket is the same as described above and, as Head[13] has pointed out, the fever associated with the cyst is usually small in amount or none at all, whereas in empyema high fever is usually present. Maier[12] points out that a pneumatocele may contain fluid and if there is a fluid level it is a low one. They fluctuate greatly in size and may vary from very large to a complete disappearance in in a short time. This would not be true in an empyema. To distinguish cysts from pneumothorax, there is no history of sudden onset and subjective symptoms are normal except for maybe shortness of breath. No pathologic process can be proven as the etiologic agent for the spontaneous pneumothorax and x-ray and physical changes, except in balloon cysts, remain the same. There is no displacement of the mediastinum or diaphragm and the compressed lobes of lung are not seen, whereas, in pneumothorax, the hilar shadows are broad because of the collapsed lung being pushed toward the hilum. The cyst wall can be seen and the fine strands traversing the space occupied by the cyst are in wide sweeping curves in-

56. Morse, Russell W.: Large Intrathoracic Pneumatocele Apparently Secondary to an Encapsulated Empyema, Journal-Lancet 60: 87-90, Feb. 1940.

57. Rigler, Leo G.: The Infected Lung Cyst, Radiology 40: 485-496, 1940.

stead of straight lines as seen when fine taut adhesions traverse a pneumothorax pocket. In pneumothorax, the visceral layer of pleura can be made out. In distinguishing cysts from tuberculoma, the latter are usually smaller, contain no air, and in some instances may contain flecks of calcium and are more often located in the upper lobes, whereas cysts are more frequent in the lower lung fields. In peripheral carcinoma, the latter is usually lobulated or flame-shaped and is rarely as smooth or sharply defined as are cysts. If there is a cavity in a carcinomatous lesion, there is usually a bulging lesion which extends for some distance out from the cavity. In cysts the walls are smooth and regular. In ecchinococcus cysts, the precipitin test, the intradermal tests, and the complement fixation, plus an eosinophilia, should indicate the pathology present. With a decrease in vital capacity and a corresponding increase in the residual air and with a relatively normal total vital capacity, obstructive emphysema of Caffey[58] is present instead of cystic disease of the lung. If the total lung capacity and vital capacity are reduced and the residual air is slightly increased, emphysematous bullae can be expected. Bullae are poorly ventilated because of the poor communication with the bronchi. In distinguishing cystic diease, especially fluid cysts, from mediastinal masses, the reflection of the posterior mediastinal pleura onto the mass indicates its mediastinal origin. Cysts are intrapulmonary and the pleural reflection onto the mass is not seen. In distinguishing cysts from hernia of the diaphragm containing stomach or intestines or eventration of the diaphragm, the diaphragmatic markings are located and this should rule out any of these conditions. There may also be peristaltic waves or gurgling sounds heard in the herniations. Bronchiectasis is usually located in the lower lobes and has sacculations which are surrounded by dense, fibrotic tissue and the lung markings are greatly increased. Eloser[32] states that cysts contain almost exclusively staphylococci, whereas this is not true in bronchiectasis and emphysema. The secretions found in cysts are mucoid, whereas in the other conditions the secretion is pus. In conditions such as actinomycosis or fungus infection, the pathology present is indicated by the isolation of the organisms on smears or cultures. Cysts are more frequent in the lower portions of the lung or may involve the entire lobe of the lung, whereas, in tuberculosis, they are more often in the upper lobes and the organisms can be identified. Other conditions, which, in the literature, have been included in differential diagnosis, are atelectasis, congenital heart disease, and even intracranial injury with a cerebral hemorrhage.

The x-ray findings[59] associated with cystic disease have been referred to above and briefly stated they are as follows: Cysts are oval instead of elongated as in empyema, and interlobar lines may cross the cysts. A honeycomb lung in x-ray resembles the cob-web. Cysts have curved lines about them, sharp outlines, and no other evidence of inflammation. The mediastinum and diaphragm are in normal position and if the cyst is in juxtaposition to the heart they simulate pleuro-pericardial cysts, but in the latter they are anterior. Cysts of pulmonary origin are thin to moderately thick-walled trabeculated cavities, frequently multiple, and a well defined pocket or pockets stand out separately from the remaining contents of the chest. Trabeculae seen in the cavities represent strands of lung tissue. Fluid cysts are rounded areas of increased density and if located in the region of the interlobar fissure may appear as interlobar effusions. The air cysts are more frequently stable on respiration. If the cysts are infected, there may be an irregular zone of reactive inflammation about the dense shadow. Some contain a fluid level surmounted by a gas bubble. Air cysts are devoid of normal pulmonary markings and the wall next to the lung has a regular curved outline and may project across the mediastinum. Multiple thin-wall cavities are pathognomonic. Saxby Willis and Almeyda differentiate between congenital and acquired cysts in stating that congenital cysts are annular shadows with well defined outlines, whereas the acquired cysts have curved or ovoid thin pencil-like outlines, and serial pictures show

58. Wilson, J. A.: Obstructive Emphysema: Case Report, Am. J. Roentgenol. 17: 432-436, 1927.

59. Kirklin, R. B.: Congenital Cyst of Lung, Am. J. Roentgenol. 36: 19-29, 1936.

the congenital cysts to remain stationary in their characteristics, whereas the acquired cysts have variable outlines of gas pockets; and they further point out that the congenital cysts are seen in tomography at three, five, seven and nine cm., whereas the acquired cysts are seen only at nine and eleven cm. In emphysema the x-ray characteristics are those stated previously, and in balloon cysts the general characteristics of cystic disease are present, plus shifts in the mediastinum and depression of the diaphragm varying in amounts according to the intracystic pressure built up in this type cyst. They are most frequently air containing but may, in some cases, contain fluid, and if this is present it is at a low level. Distinguishing characteristics for mediastinal masses, tuberculoma, or for carcinoma, carcinoma with cavities, abscesses and empyemas are as stated above.

The literature regarding the value of diagnostic procedures other than x-ray films in establishing the presence of cystic disease is somewhat confusing in that some authors state that lipiodol studies assist in establishing the presence of a disease while others state that it is of no value. Bronchoscopy, according to Brown and Robbins,[60] is of value only in that it rules out intrinsic bronchial lesions. Saxby Willis and Almeyda state that bronchoscopy, in congenital cyst, the bronchi have normal lumens and contain mucoid secretions, and that, in acquired cysts, the bronchi have distorted lumen full of pus, blood or necrotic materials, and that bronchiograms show the bronchi in congenital cystic disease to be normal and fill, whereas in acquired cysts there are variations of the bronchi and they seldom fill with lipiodol. Because of the difficulty in establishing the diagnosis in air cysts or cysts containing fluid and air located in the peripheral lung fields, all agree that Wilkinson's procedure is logical. If there is doubt about the relation of the lesion to the pleural surface, a pneumothorax is created[61] thus establishing the relation of the lesion to the lung and thereby determining whether it is intrinsic in origin or pleural. Madsen and Prickle advocate injecting ten to fifteen cc. of lipiodol into the pleural space, manipulating the patient to the desired position, causing the oil to spread out and come in contact with all the pleural surfaces, followed by x-raying the patient immediately, thereby establishing the exact location of the lesion. By so doing the diagnosis of an intra-pulmonary lesion or presence of pneumothorax can be established.

The development of modern thoracic surgery has changed the outlook in the treatment of this disease. During earlier periods, statements such as "treatment is at best unsatisfactory" were prevalent. This is not considered true at this time. The aim of treatment is the extirpation of the lesion, provided this is warranted. Also, statements in the older literature regarding the inability of children to withstand thoracic procedures must now be changed. Gross[62] has recently reported a pneumonectomy for solitary cyst of the lung in a three weeks old infant. This is characteristc of thoracic surgery of today.

In balloon cysts Maier[12] has called attention to the fact that any attempt to deflate the cyst is dangerous because the pleural space is not obliterated and, when the needle is removed from the cyst, air leaks into the pleural space producing a tension pneumothorax which may be fatal if not immediately corrected. The leakage of air into the pleura does not mean the cyst will collapse for the hole in the cyst may act as a check-valve permitting air to enter the pleural space on inspiration but have no egress on expiration. Therefore a balloon cyst plus a tension pneumothorax will be present. Pneumatoceles, he states, usually do not require drainage but if intracavity pressure and ballooning occurs, some type of deflating procedure may then be necessary and intracavity catheter suction is the choice form of treatment. In cases of emphysematous bullae or blebs which are repeatedly the sources of pneumothoraces, so frequently of the tension type, surgery to remove the causative lesion should be done. Local excision up to operation of such magnitude as necessary to remove the offending

60. Brown, Robert K., and Robbins, Laurence L.: The Diagnosis and Treatment of Bronchiogenic Cysts of the Mediastinum and Lung, J. Thoracic Surg. 13: 84-105, 1944.

61. Singer, J. J.: In the discussion of Maier and Haight's paper.

62. Gross, Robert E.: Congenital Cystic Lung, Ann Surg. 123: 229-237, 1946.

lesion should be done. Bullae and blebs, as a rule, do not cause symptoms of such magnitude and normally should be left alone. Infected cysts must be drained, and this followed by their removal, for if their lining is epithelized, as in all congenital cysts, the cavity will not become obliterated until excision is done. In the cases of multiple cysts, lobectomy of pneumonectomy must be done. In any case of suspicious cystic disease, rib resection is the procedure of choice for then the cavity can be visualized and a biopsy of its wall taken. Schenck[50] advocates the extirpation of any cyst found before secondary changes occur. He states that this may require lobectomy or pneumonectomy for a complete job. Churchill[44] treats cystic disease as bronchiectasis and the indication for treatment is the same for the two diseases. He emphasizes that excision is the treatment of choice and reports two cases where the thin-wall cyst presented in the interlobar fissure adherent to the upper lobe, and in the surgical procedure done, a portion of the wall of the cyst was deliberately left attached to the upper lobe in order to prevent serious trauma to that lobe of the lung. This was done to conserve, as Blades[63] has emphasized, pulmonary tissue in any type of resection of the lung for infectious disease. Churchill and Klopstock[29] report one case which was drained into the pleural space, the empyema drained, and later a clean lobectomy done on the patient. Brown and Brock[64] say that the entire cyst wall must be removed. In balloon-type cysts, suction drainage must be established and they,[61] in some types of cysts, advocate an "endocutaneous flap type" of operation similar to that described by Eloser[65] in the treatment of tuberculous empyema. Eloser[66] and Maier and Haight[67] state that collapse therapy in any type cyst, especially with an obstructed bronchus, is inviting disaster. Gray and Skinner[33] treated two cases of hemorrhagic cyst by marsupialization. Harrington[27] treated a similar type of cyst by excision. Wood[48] states that for diffuse saccular or honeycomb type bilateral cystic degeneration no treatment seems to be worth while. In this type, bronchoscopic aspiration and injection of lipiodol may be the treatment of choice. He mentions cauterization of the bronchus, going into the cyst, thereby producting an obstruction and thus preventing secondary infection. This type of treatment, under present-day conditions, does not seem warranted. Smith[34] reports a case in which it presented itself because of a pneumothorax, and thoracoplasty was done as the method of therapy, but, as indicated above, this type of treatment is not considered adequate. Fields and Rosenberg[68] reported a case cured by the application of 25% silver nitrate to the walls of the cyst after it had been drained. Maier and Haight[67] and Wood[51] mention this type of treatment but all agree that excision is the method of choice. Tyson[54] follows Churchill's suggestion of draining an infected cyst, the empyema if necessary, and, after the infection has cleared up, do the definitive surgery. If possible, the cyst should be removed without being opened. Carson and Webb[69] report a case in a two-year-old colored child who developed a pneumothorax and a pyopneumothorax associated with cystic disease, the pneumothorax being of the tension type. This case was treated by chemotherapy and rib resection and the pyopnemothorax cleared up, but the cyst persisted. This was as should have been expected. All authors stress the "biopsy at time of operation" idea, for the pathologic picture obtained in diagnostic.

When a thoracotomy is done, the absence of reaction in the periosteum and the intercostal structures points to cysts as the underlying disease, especially if the infection has been present for a long time. The pleura may be quite thin in cystic disease and pul-

63. Blades, Brian: Conservation of Lung Tissue by Partial Lobectomy, Ann. Surg. 117: 353, 1943.

64. Brown, Lincoln and Brock, William: Method of Treatment of Large Pulmonary Air Cysts (Balloon Cysts) by Endocutaneous Flap, J. Thoracic Surg. 11: 617-636, 1941-1942.

65. Eloser, Leo: Operation for Tuberculous Empyema, Surg. Gynec., and Obst. 60: 1096, 1935.

66. Eloser, Leo: Congenital Cystic Disease of the Lung, Surg. Gynec., and Obst. 52: 747-758, 1931.

67. Maier, Herbert C., and Haight, Cameron: Large Infected Solitary Pulmonary Cyst Simulating Empyema, J. Thoracic Surg. 9: 471-492, 1940.

68. Fields, William H., and Rosenberg, Lester: Cystic Disease of Lung J. Thoracic Surg. 7: 218-222, Dec. 1937.

69. Carson, M. J., and Webb, A. Jr.: Congenital Cysts Complicated by Pyopneumothorax, J. Pediat. 25: 443-446, 1944.

monary tissue may have to be traversed prior to reaching the contents of the cyst. If the pathology were empyema, which is either localized and the choice of site for incision has not been good, or if a collection of fluid lies in the interlobar space, the same may be true, but normally, in the last two conditions, the pleural reaction and the reaction of the chest wall are present. Multiple bronchial fistulae leading into the structure usually mean cyst, but this may be true when abscesses ruptured into the pleural space producing empyema. At operation, cavities traversed by strains of tissue are usually diagnostic of cystic disease, but this may also be true in multiple abscesses or tuberculous cavities; but when the strands are covered by epithelium, cyst is the pathology present.

In the excision of cysts, the dissection from the chest wall and pericardium is usually easy. That dissection which is necessary to separate the cyst from the diaphragm and interlobar fissures is difficult. Haight[70] calls attention to the necessity for caution when dissecting cyst from the diaphragm because of the presence, in some cases, of an anomalous pulmonary artery coming to the involved lobe via a transdiaphragmatic route. This vessel was noted by McCotter (1910) and Balls (1939) and was also referred to by Maier. On approaching the cyst, the lobe containing the lesion should be dissected free until the pedicle is established. This contains the blood vessels, the bronchus, and they should be individually ligated, the blood vessels tied and the bronchus closed and covered over by remnants of the lobe of lung or by pleura. A phrenicotomy should be done at thoracotomy for it helps to close the space left by the removed cyst. Because of the ribs removed during the operation, thoracoplasty will usually not be necessary for the obliteration of the space.

Operations of greater magnitude are constantly being performed for this disease. Fischer, Tropen and Bailey[71] have removed the upper and middle lobes of a one-month-old child for cystic disease. This indicates the trend of modern thoracic surgery and the treatment of this disease.

70. Haight, Cameron: In discussing paper by Brown and Brock.

71. Fischer, Carl C.; Tropen, Frank Jr., and Bailey, Chas P.: Congenital Pulmonary Cysts, J. Pediat. 23: 219-223, 1943.

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4. Dubrow, James L., and Wynne, W. R.: Cystic Disease of the Lung, Am. Rev. Tuberc. 38: 262-265, 1938.

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6. Miller, R. T., Jr.: Congenital Cystic Lung, Arch. Surg. 12: 392-405, 1926.

7. Potter, Hollis E., and Robert M.

8. Rees-Jones, G. F.: Cystic Diseases in Azygos Lobe with Phrenic Paralysis, Brit. J. Radiol. 17: 386 (Dec.) 1944.

9. Rigler, Leo G.: In discussion, Radiological Society of N. A., Memphis, Dec. 3-7, 1934.

10. Smith, S.: Congenital Disease of the Lung, Brit. Med. J. 1: 1005 (May 30) 1925.

Carcinoma of the Pancreas—In our experience at the Mayo Clinic, pain has been the chief complaint in about half of the cases of carcinoma of the pancreas and it has been the important symptom in about three-fourths of the cases. The pain may be severe; however, it is usually not colicky in type, as it is in biliary lithiasis. It is usually aching in character, extends into the back, and is often worse when the patient is in a reclining position and is relieved when he sits or stands.

Enlargement of the liver and gallbladder frequently is cited as of important diagnostic significance. The enlargement of these organs depends on the degree and duration of obstruction to the common bile duct. Actually, the gallbladder is palpable in only about half of all cases. Loss of weight occurs in more than 80 per cent of the cases. The secretin test and quantitative tests for serum amylase and serum lipase are not of great diagnostic significance. Roentgenologic studies may reveal some deformity of the duodenum by an extrinsic mass, but this deformity is not diagnostic. A real need exists for development of more accurate tests of pancreatic function which might aid in the early diagnosis of pancreatic lesions.

Carcinoma of the ampulla of Vater and the lower end of the common bile duct is usually of a low grade of malignancy. Because of their location, extremely small tumors can produce symptoms, particularly obstructive jaundice, which call attention to their presence at an early time. For this reason, these lesions are particularly favorable for surgical resection. They should be considered with carcinoma of the head of the pancreas because it is often impossible to differentiate between the two clinically.—*Clagett, Texas State J. Med., May* '47.

RECENT ADVANCES IN THE USE OF SPINAL ANAESTHESIA

WITH SPECIAL REFERENCE TO THE USE OF SADDLE BLOCK IN OBSTETRICS

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The use of spinal anaesthesia in general surgery has been steadily increasing during the past decade. Numerous refinements, both in anaesthetic drugs and in the technics of administration, have greatly broadened the field of usefulness of this type of anaesthesia and in so doing have abolished many of the previously held contraindications.

In numerous clinics in this country, spinal anaesthesia is the method of choice in the majority of operative procedures below the diaphragm and recently a technic has been reported whereby spinal anaesthesia may be advantageously employed in obstetrics.

Prior to the publication of Sise's article in 1935,[1] much of the objection to spinal anaesthesia centered around the duration of the anaesthesia and the uncertainty of obtaining sufficiently high levels of anaesthesia safely. By mixing the anaesthetic drug with glucose, Sise obtained a solution that was hyperbaric, or heavier than spinal fluid. Following the administration of the anaesthetic, the patient was placed in either Trendelenberg or reverse Trendelenberg position causing the solution to move cephalad or caudad. By means of careful and repeated sensory examinations the progress of the anaesthesia could be followed and, when the desired level had been reached, further progress of the solution could be halted by returning the patient to the horizontal position. This was an important contribution since, for the first time, it gave the anaesthetist good control of the height to which the solution extended and greatly minimized the danger of cervical cord involvement with resultant phrenic paralysis and respiratory arrest.

In addition, Sise, at the same time, reported on the use of pontocaine, an anaesthetic drug that sufficiently prolonged anaesthesia to give ample time for most abdominal procedures.

Some fall in blood pressure commonly occurs following the use of high spinal anaesthesia. Occasionally such a fall may be quite rapid and alarming. If proper premedication is used, such an accident should be rare. Ephedrine sulfate, in doses of 25 to 50 mgm. given 5 minutes before the induction of the spinal, has proved to be fairly satisfactory in controlling the blood pressure. For many years neosynephrine was used to counteract falling pressure following induction of the anaesthesia. This drug was not satisfactory because of lack of sustained response and because the response in some cases tended to be extreme.

During the past year we have been using a newly introduced vasopressor substance to control hypotension in spinal anaesthesia. This drug, marketed under the trade name of Oenethyl,* has been released for general use recently. It has been used both prophylactically and therapeutically. We have found it quite effective when administered as premedication in doses of 75 mgm. intramuscularly. It may be given either intravenously or intramuscularly to control a fall in blood pressure. When given intravenously it should be given in divided doses of 15 mgm. and the pressure checked repeatedly to avoid overdosage. Larger amounts, 75 to 100 mgm., are required, when given intramuscularly, to produce the desired effect. In general, in severe hypotension the intravenous route is to be preferred. Side reactions, other than occasional nausea, are not seen with proper dosage. Following its administration there is a gradual and sustained rise in both systolic and diastolic pressure, an increase in the pulse pressure and mild stimulation of respiration.

All of the work described in this article was done in collaboration with Dr. W. H. Ivey, Head of The Department of Anaesthesia, Walker County Hospital, and the majority of the anaesthetics were administered by him.

Read before the Association in annual session, Birmingham, April 14, 1947.

1. Sise, L. F.: Pontocaine-Glucose Solution for Spinal Anaesthesia, S. Clin. North America 15: 1501-1511 (December) 1935.

*Supplied through the courtesy of the Bilhuber-Knoll Corporation.

We have used this drug in over 500 major procedures and consider it superior to any of the drugs commonly used to control hypotension in spinal anaesthesia.

In operations in the upper abdomen, high spinal anaesthesia may be advantageously supplemented by intravenous sodium pentothal analgesia. The discomfort and nausea that commonly accompany traction upon the viscera may be abolished with very small amounts of sodium pentothal.

It has been demonstrated that the vasoconstrictor drugs may be injected intrathecally and prolong the action of the anaesthetic agent probably by decreasing the rate of absorption. This has enabled the anaesthetist to reduce the amount of anaesthetic drug employed. At the present time we seldom use more than 14 mgm. of pontocaine even in the more complicated cases of gastro-intestinal and biliary surgery. To the nupercaine-glucose or pontocaine-glucose mixture, 25 mgm. of ephedrine sulfate are added and the resultant solution is injected into the subarachnoid space. In the simpler and less time-consuming procedures the dosage of the anaesthetic agent is decreased and on occasion as little as 5 mgm. of pontocaine will be sufficient. This lower dosage of course results in a wider margin of safety since these drugs are all toxic in direct ratio to the amounts used.

At the present time, if spinal anaesthesia of more than two hours' duration is desired, there are two generally accepted methods by which it may be obtained. The first and perhaps the most widely used is the so-called continuous spinal anaesthesia first introduced by Lemmon.[2] In this technic, an indwelling needle or catheter is left in place in the subarachnoid space and supplementary injections of the anaesthetic agent are given as needed. In this manner anaesthesia of many hours' duration may be obtained.

The second method of obtaining anaesthesia of longer duration is through the use of nupercaine or percaine. As recently reported by Adriani and Roman-Vega,[3] this drug may be used with glucose in the same manner as pontocaine. Anaesthesia of from three to five hours may be obtained with a single injection of nupercaine. The average in a series of 1500 consecutive spinals was 3½ hours.

In 1942 Hingson and Edwards[4] reported their results using continuous caudal anaesthesia in obstetrics during labor and delivery. This technic is similar to that of Lemmon's except the anaesthetic drug is introduced through the sacral hiatus and is deposited in the peridural space and not the subarachnoid space. There has been much controversy concerning the advantages, limitations and dangers of this form of anaesthesia since the original publication. In a recent article, Ellis and Sheffrey report their experience with 275 obstetrical cases managed under caudal anaesthesia and conclude that it is as safe as any other type of anaesthesia and has definite places in obstetrics.

Saddle block anaesthesia is a form of spinal anaesthesia that is confined to the perineal area. Its use in obstetrics, with the technic described, was first proposed by Parmley and Adriani in March 1946.[3] They reported 100 cases managed by this method with very gratifying results.

The instruments needed to induce this type of anaesthesia are the same as those used in any other type of spinal puncture. We have found that the use of a Sise tack is an aid in making the puncture. We also advocate the use of a malleable gold spinal needle to minimize the dangers of damage to the bony structures and to eliminate the possibility of breaking the spinal needle. A lumbar puncture is made in the third or fourth interspace with the patient in a sitting position bending slightly forward, with her arms crossed over her chest and her head and shoulders supported by a nurse standing directly in front of the patient. A previously prepared solution containing 1 cc. of a 1-200 solution of nupercaine, 1½ cc. of 10% glucose in physiological saline or distilled water and ½ cc. of a 1-20 solution of ephedrine sulfate is injected into the subarachnoid space during an interval between pains. This solution contains 5 mgm. of

2. Lemmon, W. T.: A Method for Continuous Spinal Anaesthesia; a Preliminary Report, Ann. Surg. 111: 141-144 (January 1940).

3. Parmley, R. T., and Adriani, J.: "Saddle Block Anaesthesia with "Nupercaine" for Obstetrics, South. M. J. 39: 191-194 (March) 1946

4. Edwards, W. B., and Hingson, R. A.: Continuous Caudal Anaesthesia in Obstetrics, Am. J. Surg. 57: 459-464 (September) 1942.

nupercaine and 25 mgm. of ephedrine sulfate in addition to the glucose. The patient is kept in a sitting position for 90 seconds and then allowed to lie down with her head slightly elevated on a pillow. Anaesthesia is usually complete within five minutes and lasts from three to five hours. The blood pressure is checked before and ten minutes following the administration of the anaesthesia. Unless clinically indicated, no further blood pressure determinations need be made. Vasoconstrictor drugs are not used as premedication and to date have not been necessary during anaesthesia. Pontocaine or nupercaine may be used. We prefer nupercaine almost exclusively because of the uncertainty as to the duration of labor.

The degree and extent of the anaesthesia will vary with the length of time the patient is kept in a sitting position following the injection of the solution. With the technic outlined above, perineal anaesthesia and relaxation will be complete and profound. The anaesthesia will extend to the symphysis pubis with an area of hypalgesia one-third of the distance to the umbilicus. A varying degree of anaesthesia and analgesia will be present over the inner surface of the thighs and the lower legs. Motor power, although decreased approximately 60%, will be retained in the legs in the majority of cases. Sensory impulses from the uterus, cervix, vagina and perineum will be blocked so that the relief from pain will be complete. Since the motor fibers to the uterus arise from a higher level, supposedly the thoracic cord, there is no interference with uterine contractions. The voluntary muscles of the abdominal wall are not involved and, following dilatation of the cervix, the patient is told when a contraction occurs in order that she may use these muscles to aid in terminating labor.

A medio-lateral episiotomy is made in all primiparas and in multiparas when indicated. Delivery is completed in the majority of cases with outlet forceps. One cc. of obstetrical pituitrin is given routinely following delivery of the shoulders, and in most cases the placenta can be immediately expressed with a rather marked decrease in the amount of postpartum bleeding.

In primiparas the anaesthesia is usually given when the cervix is 4 to 6 centimeters dilated and approximately 60 per cent effaced. In multiparas the anaesthesia may be given earlier and is usually given when contractions are occurring every 7 to 8 minutes. We have found, as have others, that the block may be repeated as often as necessary. In the majority of cases one block is sufficient. However, in primiparas with unusually large babies, in persistent posterior positions or in mild cephalo-pelvic disproportion the block may be repeated. We have not as yet had to repeat the block in breech presentations.

During the past year we have used saddle block anaesthesia with increasing frequency. At first its use was confined entirely to completely normal uncomplicated cases. However, as we became more familiar with the method and its limitations we broadened the field of its use until at the present time it is only the rare case that requires any other type of anaesthesia.

We do not recommend this type of anaesthesia for intra-uterine manipulation at the present time although on three occasions an internal podalic version and extraction was done without difficulty. The cervix and lower uterine segment were completely relaxed during the procedure.

We have found spinal anaesthesia to be valuable in managing the pre-eclamptic and eclamptic patients. It usually produces a slight to moderate fall in the blood pressure and there is no pressure rise during a contraction since the patient experiences no pain.

We have had no serious complaints of headache following the use of saddle block. Nausea during labor is a troublesome complaint and occurs in approximately fifty per cent of the patients, with vomiting in approximately twenty per cent. We have no explanation for the nausea but if fluids are restricted during the latter part of labor this complaint is decreased. In an unusually prolonged labor, fluids should be administered intravenously. Particular attention should be paid to the urinary bladder and it should not be allowed to become over-distended. If this occurs, dysuria and frequency may be expected to follow in the postpartum period.

Both caudal and spinal anaesthesia have some very definite advantages over the other types of obstetrical anaesthesia now being used. The babies are not narcotized

and it is rare that any type of resuscitation has to be used. The patients are fully awake and wholly cooperative and are able to assist the obstetrician in cases of difficult delivery. There is considerably less blood loss than with other types of anaesthesia. The relaxation of the perineum is complete, decreasing the hazards to the infant in its passage through the birth canal and reducing the possibility of perineal and bladder injuries. There is no postpartum nausea, vomiting or distention. There are fewer respiratory complications than are found in inhalation anaesthesia. It is our feeling that labor is shortened with the use of spinal or caudal anaesthesia.

In addition to the above, we feel that saddle block offers these advantages over caudal. Much smaller doses of anaesthetic drug are used with saddle block. The technic of administration is considerably simpler. There is no danger of inadvertently producing very high levels of anaesthesia with saddle block as occasionally occurs with caudal when the anaesthetic solution enters the subarachnoid space. The danger of infection from the indwelling needle or catheter is obviated with the use of saddle block. The patient is not restricted and may move about at will. The nursing care and expert attention required by a patient are less with saddle block.

We have now used this technic in approximately 150 cases with no maternal mortality and with the loss of two infants. One death resulted in an infant born at eight months of a severely toxemic mother. This child lived for three days following delivery. The second case was one of a prolapsed cord with a non-viable fetus on admission to the hospital. The anaesthesia was used in this case to facilitate delivery. While this is not a large series of cases, it is fairly representative and includes most of the ordinary complications of labor and delivery. It is our opinion, based on the experience gained from following these cases, that saddle block anaesthesia offers very definite advantages, both to the mother and to the baby, over any other type of anaesthesia now being used, and our results would indicate that it is worthy of further clinical trial and evaluation.

Problems of Medicine—The major problem confronting medicine at the present time is that of proper distribution of medical care to all individuals. I think that all, whether laymen or physicians, recognize that there has been a definite failure as to proper distribution of physicians, especially in rural communities. This is largely the result of the circumstance that as the older physician retired, or more commonly died, there was no younger man at hand to take his place. The older physician, because of his period of training and because knowledge and specialized technics had not advanced to their present levels, was able and obliged to carry in his head and in his handbag the major equipment necessary for his practice and was, despite the rise of newer methods of medical practice, able to establish a following which remained loyal to him throughout his years of practice until his retirement or his death. Thus the younger man locating in the same community could find nothing to work with save those things which he, like his predecessor, could carry in his head or in his handbag. Consequently he could not utilize the advantages of the laboratory with its x-ray, chemical and pathological assistance, and either had to pick up and migrate to some larger center providing these facilities; or, if he stayed put, was compelled to practice a grade of medicine well below his ability and more advanced training. This is bad enough in itself. But still worse, he was not uncommonly looked down upon by his fellow citizens who were wont to assume that if he were much good he would not remain. So with better roads and more automobiles, the rural citizen jumps in his Ford or Jeep and rolls away to some larger, neighboring community where likely as not he picks out a physician no more capable than the young doctor in his home community, but one who has the advantages of hospital and laboratory facilities which the home physician has not. Obviously the solution to this problem is not compulsory health insurance or regimentation of doctors but the proper distribution of hospital and clinic facilities. If we make hospitals and their facilities easy of access to all the people, with proper clinic facilities in relation to them as feeders, the maldistribution of young doctors will solve itself. Just as soon as good clinical and hospital facilities are placed within the reach of able young men, many will be found who are willing to practice in the smaller communities and will naturally migrate to those localities. The large city has little to offer the younger man entering medicine except its hospital and school facilities. This is the reason why the American Medical Association sponsored the Hill-Burton Hospital Construction Bill, which, if its purposes are ultimately fulfilled, will make proper clinic and hospital services accessible to every individual throughout this entire nation.—*Chaney, J. M. A. Georgia, May* '47.

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MOBILE
APRIL 15, 16, 17

Abortus Infections—The widespread prevalence of the abortus infection among cattle for more than 150 years in the United States constitutes sufficient proof that the disease must have been most common in man prior to its recognition as a clinical entity. The prevalence and duration of the infection in endemic areas also suggest that the organism has been attenuated and, in many instances, it exists as a non-pathogenic organism.

Though not generally recognized, this change of the pathogenesis of *Brucella abortus* has conformed with the basic principles of immunology and offers a satisfactory explanation for many of the difficulties encountered in both diagnosis and treatment.

Other diseases have undergone similar changes as a result of the attenuation of the organism and subsequent alteration of the manifestations has made clinical diagnosis most difficult.

The present situation for brucellosis closely resembles that for syphilis. In the great epidemic at the end of the fifteenth century, syphilis existed as an acute infectious disease manifested by high fever and symptoms of such severity that early death frequently resulted. This epidemic had all the characteristics of a virulent plague. Evidence indicates that with the rapid syphilization of the world, the virulence of the disease was attenuated and that within fifty years syphilis assumed the chronicity as presented today. As in the case of brucellosis the prevalence of the disease was denied by physicians until Wassermann devised a specific test in 1905.

Further observations indicate that the pathogenesis of syphilis and brucellosis bear a resemblance as regards the presence of antibodies. Stokes states: "While it has been shown that agglutinins and lysins for the *Spirochaeta pallida* are formed, the amounts are insignificant so far as inhibitive effect on the disease is concerned." An analogous condition exists in endemic areas where brucellosis and Bang's disease are prevalent. Consequently the diagnosis of chronic brucellosis is as difficult as would be the diagnosis of syphilis without the aid of the Wassermann reaction.

The two diseases have other likenesses in common. The protean manifestations of brucellosis and syphilis are similar in that they have lost their clinical identity. They no longer present the symptoms of acute reaction following initial infection. They have lost their particular affinity for certain tissues, a characteristic yet retained by most other infectious diseases. Consequently the resultant pathology has been found in practically all of the tissues of the body. Both diseases may be congenital. In consideration of the clinical evolution of diseases, it becomes apparent that brucellosis and syphilis have undergone many similar changes.—*Schmidt, New Orleans M. & S. J., May* '47.

Tabes Dorsalis—Tabes dorsalis is a clinical syndrome due to spinal syphilis. Except for the cranial nerve and pupillary signs, the symptoms of the disease are explained by inflammation and degeneration of the posterior roots of the spinal nerves. Rarely, anterior roots are also involved. In most cases, symptoms begin gradually and progress only slightly over several years; in other cases, however, symptoms may develop rapidly, and control of the legs and the urinary bladder may be lost within a matter of weeks. In some cases, debilitating illness, exhaustion, poor nutrition, and other factors appear to play a contributory role.

Unfortunately, many of the most distressing manifestations of the disease—visceral crises, lightning pains, Charcot joint, and bladder dysfunction—are only slightly affected by antisyphilitic treatment. If treatment is administered early, ataxia may be greatly benefited, but improvement is usually more dependent upon good nutrition and reeducation of muscles than upon antisyphilitic therapy. However, in spite of the fact that many symptoms and signs of tabes are residual and secondary phenomena, the first aim of treatment is to prevent progression by administering antisyphilitic therapy to arrest whatever inflammatory or degenerative process may be present.

The diagnosis of tabes is usually not difficult. The physical examination reveals irregular, unequal pupils which do not react to light, lightning pains, ataxia, positive Romberg sign, loss or reduction in vibration and position sense in the lower extremities, reduced deep-pain sense, atonic bladder, and absent tendon reflexes in the legs. Occasionally, however, when only a few signs are present, it is difficult to establish the diagnosis. Most authorities would accept the diagnosis of tabes in the presence of a positive spinal fluid Wassermann test if any one of the above listed signs, excluding the pupillary irregularities, are present. The spinal fluid is variable in tabes. In some patients it shows the strong "paretic formula," while others have completely normal fluids ("burnt-out tabes"). More commonly, however, the several tests show slight to moderate abnormalities.

The tabetic patient frequently requires general medical, nutritional, and physical therapy, as well as antisyphilitic treatment. Cases with normal spinal fluid may need no antisyphilitic treatment. Patients with optic atrophy or general paresis should be treated by the methods outlined for those conditions. Fever therapy, which is required in a high percentage of cases, should not be debilitating, lest symptoms and signs of the disease, especially bladder dysfunction, be exaggerated. The usefulness of fever therapy in neurosyphilis has been well established. The exact mechanisms by which it helps to bring about recovery are not known. Since the body temperature cannot be raised safely to the thermal death-point of the spirochetes, however, it may be presumed that the effect of fever is to aid the body's defense against the infection.—*Rose, North Carolina M. J., May* '47.

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METOPON HYDROCHLORIDE

(Methyldihydromorphinone hydrochloride)

In 1929, with funds provided by the Rockefeller Foundation, the National Research Council, through its Committee on Drug Addiction, undertook a coordinated program to study drug addiction and search for a non-addicting analgesic comparable to morphine. The principal participating organizations were the Universities of Virginia and Michigan, the U. S. Public Health Service, the Treasury Department's Bureau of Narcotics, and the Health Department of the State of Massachusetts, which brought together chemical, pharmacologic and clinical facilities for the purpose of the study. Metopon is one of the many compounds made and studied in this coordinated effort.

Chemically Metopon is a morphine derivative; pharmacologically it is qualitatively like morphine even to the properties of tolerance and addiction liability. Chemically Metopon differs from morphine in three particulars: one double bond of the phenanthrene nucleus has been replaced by hydrogenation; the alcoholic hydroxyl has been replaced by oxygen; and a new substituent, a methyl group, has been attached to the phenanthrene nucleus. Studies made thus far indicate that pharmacologically Metopon differs from morphine quantitatively in all of its important actions, its analgesic effectiveness is at least double and its duration of action is about equal to that of morphine; it is nearly devoid of emetic action; tolerance to it appears to develop more slowly and to disappear more quickly, and physical dependence builds up more slowly than with morphine; therapeutic analgesic doses produce little or no respiratory depression and much less mental dullness than does morphine; and it is relatively highly effective by oral administration.

In addition to animal experiments these differences have been established by extensive employment of the drug in two types of patients: individuals addicted to morphine, and others (terminal malignancies) needing prolonged pain relief but without previous opiate experience. In morphine addicts, Metopon appears only partially to prevent the impending signs of physical and psychical dependence. In terminal malignancy, administered orally, it gives adequate pain relief, with very little mental dulling, without nausea or vomiting and with slow development of tolerance and dependence.

The high analgesic effectiveness of oral doses (with the elimination of the disadvantage to the patient of hypodermic injection), the absence of nausea and vomiting even in patients who vomit with morphine or other derivatives, the absence of mental dullness and the slow development of tolerance and dependence place Metopon in a class by itself for the treatment of the chronic suffering of malignancies, and it is for that purpose exclusively that it is being manufactured and marketed.

Metopon will be available *only* in capsule form *for oral administration.* The capsules will be put up in bottles of 100 and each capsule will contain 3.0 mgm. of Metopon hydrochloride. They can be obtained by physicians only from Sharp & Dohme or Parke, Davis & Co. on a regular official Narcotic Order Form, which must be accompanied by a signed statement supplying information as to the number of patients to be treated and the diagnosis on each. The drug will be distributed for *no other purpose* than oral administration for chronic pain relief in cancer cases.

The dose of Metopon hydrochloride is 6.0 to 9.0 mgm. (2 or 3 capsules), to be *repeated only on recurrence of pain,* avoiding regular by-the-clock administration. As with morphine, it is most desirable to keep the dose at the lowest level compatible with adequate pain relief. Therefore, administration should be started with two capsules per dose, increasing to three only if the analgesic effect is insufficient.

Tolerance to any narcotic drug develops more rapidly with excessive dosage and under regular by-the-clock administration. Also, as a rule, the pain of cancer varies widely in intensity from time to time. Pain, therefore, should be the only guide to time of administration and dosage level. Tolerance to Metopon hydrochloride develops slowly. It can be delayed or interrupted entirely by withholding the drug occasionally for 12 hours or for as much of that period as the incidence of pain will permit.

To each physician will be sent a record card for each patient to whom Metopon hydrochloride is to be administered. He will be requested to fill out these cards and return them in the addressed return envelope. He must furnish this record of his patient and his use of Metopon hydrochloride if he wishes to repeat his order of the drug. The principal object of this detailed report is to check the satisfactoriness of Metopon hydrochloride administration in general practice. The physician's cooperation in making it as complete as possible is earnestly solicited.

The limited use of Metopon hydrochloride as described above has been recommended by the Drug Addiction Committee of the National Research Council and the Committee, with the cooperation of the American Cancer Society, will supervise the distribution of the drug. The Committee is composed of Wm. Charles White, Chairman, Washington, D. C.; H. J. Anslinger, Commissioner of Narcotics, United States Treasury Department, Washington, D. C.; Lyndon F. Small, National Institute of Health, Washington, D. C.; and Nathan B. Eddy, National Institute of Health, Washington, D. C. Queries and comments on Metopon may be directed to Dr. Eddy, who will answer them for the Committee.

OPENING AT PANOLA

Dr. L. F. Jackson of Panola, who is planning to retire, is desirous of establishing contact with a physician who would like a location in a good black-belt community. Anyone interested may write Dr. Jackson who will furnish all details regarding the opening.

THIRD AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

The Third American Congress on Obstetrics and Gynecology will be held from September 8-12, 1947 in the Municipal Auditorium in St. Louis, Missouri. The Second Congress was held in the same place in 1942 and the First Congress in Cleveland in 1939. Dr. Fred L. Adair of Chicago is again General Chairman.

While the Third Congress is similar in scope and program to the two previous meetings it will be larger in every way. The program, under the direction of Dr. William F. Mengert of Dallas, is being made up to appeal to the obstetric and gynecologic specialist, to the general practitioner interested in those fields, to the hospital administrator and to nurses. The program will include sections for the public health doctor and the public health nurse. The medical section of the program is under the direction of Dr. Ralph A. Reis of Chicago as in 1942.

The scientific exhibits are under the guidance of Dr. Jean Paul Pratt of Henry Ford Hospital. The motion picture program is being made up by Dr. John Park of Washington, D. C. Dr. John Rock of Boston heads the committee on evening speakers. The technical exhibit has been arranged by Dr. Philip F. Williams of Philadelphia. A membership committee in every state and in the territories is being set up by Dr. Ralph E. Campbell of Madison, Wisconsin and plans are underway to have a special committee build up interest in the Congress in Central and South America. Dr. Harvey B. Matthews of Brooklyn heads the committee in charge of publicity. The general advisory committee is in charge of Dr. Howard C. Taylor, Jr. The local organization committee in St. Louis is headed by Dr. Richard Paddock.

The Friday morning sessions of the Congress, September 12th, are to be given over

entirely to the National Federation of Obstetric-Gynecologic Societies. The program for these sessions will be arranged by a committee working under Dr. James S. Taylor of Altoona. One member of this committee, Dr. E. Lee Dorsett of St. Louis will arrange an evening speaker for the Federation of nation-wide prominence who will present his viewpoints to a joint meeting of the Congress, the Federation and the general public.

The program of the Congress will feature general sessions for all groups making up the Congress as well as smaller individual group meetings and round table discussions. The morning sessions will be panel-type presentations of the following subjects. Tuesday, Sept. 9; Anaesthesia and Analgesia; Wednesday, Sept. 10: Cancer; and Thursday, Sept. 11; Cesarean Section.

The afternoon meetings of the medical section of the Congress will consider on Tuesday: Psychosomatic Aspects of Pregnancy; on Wednesday: Pregnancy Complicating Cardiac Disease, Diabetes and Tuberculosis; and on Thursday: Recent Advances in Endocrinology.

Round table discussions from four o'clock to five daily will consider such topics as etiology of abortion, asphyxia, fibroids, prolonged labor, infertility, early ambulation, adolescence, treatment of abortion, genital relaxation, ovulation, the menopause, the cystic ovary, uterine bleeding, nutrition in pregnancy, geriatric gynecology, endometriosis and erythroblastosis.

Concurrent sessions and round tables for nurses, hospital administrators and public health workers are being arranged.

The popular forceps and breech demonstrations that attracted so much attention at the Second Congress in 1942 will be increased in number so that eighteen demonstrations per day will be held, six each at nine, one and five o'clock daily.

Anyone wishing to make application for space in the scientific exhibit or for time on the motion picture program may obtain the proper blanks from the office of the Congress at 24 West Ohio Street, Chicago 10, Illinois.

TRANSACTIONS OF THE ASSOCIATION

1947 SESSION

(Concluded)

Last Day, Wednesday, April 16

The Association, sitting as the Board of Health of the State of Alabama, was called to order at 8:30 A. M. by the President, Dr. C. A. Grote.

The report of the Board of Censors was rendered by the Chairman, Dr. E. V. Caldwell, Huntsville.

THE SEVENTY-THIRD ANNUAL REPORT OF THE STATE BOARD OF CENSORS, INCLUDING ITS REPORTS AS THE STATE BOARD OF MEDICAL EXAMINERS AND AS A STATE COMMITTEE OF PUBLIC HEALTH

E. V. Caldwell, M. D., Chairman

The State Board of Censors, in conformity to constitutional mandate, has the honor to submit to this Association its Seventy-Third Annual Report.

PART I

AS A STATE BOARD OF CENSORS

A Resolution

Dr. Mercer Stillwell Davie, of Dothan, Alabama, who departed this life last January 20, left behind him a good report of service. Dr. Davie was born July 12, 1873, at Cowikee, Barbour County, Alabama. He received his education in the following schools: Cowikee, Columbia, Ozark, and Tulane University, New Orleans, Louisiana. He was graduated by Tulane University, with the Doctor of Medicine degree, in 1899. Dr. Davie promptly began the practice of medicine in Dothan, Alabama, and continued such practice there until his death.

Dr. Davie was elected to membership on the State Board of Censors in April 1933 for a term of five years. He served until the meeting of the Association in April 1939 when he was elected President of the Association. On his retirement from the Presidency in 1940 he was again elected to membership on the State Board of Censors,

and served with devotion and vital interest continuously until his death.

The State Medical Association created its Postwar Planning Commission in April 1944, and the President of the Association appointed Dr. Davie to serve as Chairman of that Commission. He served on the Commission until his death; now therefore be it

Resolved, That the State Medical Association, was a keen sense of loss to this body, and to the Board of Censors, as well as to the people of Alabama, and to Dothan and Houston County in particular, does hereby place itself on record, in the minutes of this meeting, as being painfully cognizant of the loss it has sustained; and be it further

Resolved, That this resolution, with its preamble and introduction, be printed in full in The Journal of the Medical Association of the State of Alabama, and that a copy be furnished his family and to the press.

Election of State Health Officer

Section 6 of Article XIII of the Constitution of the Medical Association of the State of Alabama, as amended, reads as follows:

"The Board shall elect by not less than a majority vote of its members, an executive officer to be known as State Health Officer, and shall submit the name of the officer so elected to the Association (the State Board of Health), in annual session, for confirmation."

In compliance with this constitutional provision, the Board has pleasure in reporting to this Association that it has unanimously elected D. G. Gill, of Montgomery, as State Health Officer for a period of five years, and now submits this action by the Board to this Association for confirmation.

The election was confirmed by the Association.

The President's Message

The President, in his Message, expressed thanks and appreciation for the honor conferred on him and briefly touched on the history of this Association since its founding one hundred years ago. The glorious heritage enjoyed by the members today must not be allowed to lapse through lack of interest and failure to work for the good of the profession.

The President paid tribute to the Committees of the Association and, in particular, singled out Dr. Davie of the Postwar Planning Commission. The Secretary and the Board of Censors were commended for their zeal and cooperation, and the work of Dr. J. Paul Jones in the interest of rural medical care was lauded.

Several recommendations of the President require serious thought on the part of the Association.

The recommendation that a committee of five be named to study and prepare a report to the Association on contract practice as it relates to organized labor and coal mining is concurred in and recommended for approval.

The recommendation was approved by the Association.

The Board recommends that the Association reaffirm approval of the Hospital Service Corporation with the medical, surgical, and obstetrical care rider.

Reaffirmation was given by the Association.

The Board endorses the recommendations of the President as they relate to Dr. William Crawford Gorgas and recommends their passage by the Association.

The Association concurred.

The Board concurs in the recommendation that there be appointed by the Board from among its members a Legislative Committee to study the finances and operations of the State Health Department. The question of a County Merit System cannot be lightly passed on by the Association. One of the requirements of the U. S. Public Health Service and of the Children's Bureau for participation in federal grants-in-aid is that there be a functioning merit system. The necessity of raising salaries both at the state and county levels is recognized by the Board but it is believed that relief can be obtained within the framework of the Merit System if the salary of the State Health Officer be increased so that other personnel can be stepped up. Study of the problem of the subcommittee of the Board is recommended.

The Association approved the recommendation.

The President is recommending that the Postwar Planning Commission be dissolved and that a new committee to be known as The Medical Care and Public Relations Committee be appointed. The Board is very conscious of the work that has been done by the Postwar Planning Commission, and, while concurring in the recommendation, wishes to extend its deepest thanks to the members of the Commission for a job well done.

The recommendation of the Board was concurred in.

The Board appreciates that the medical profession everywhere has to do its part toward improving medical care on both the state and national levels and that the profession in Alabama should be no exception; that the Association needs a public relations officer to educate the profession and the people as to the best course to pursue in this endeavor, and if this aim is achieved, the dues of the Association will have to be markedly raised.

Therefore, the Board recommends that the dues, beginning at the next regular annual dues date, be raised to $20.00 per member of the Association, exclusive of (1) those now absolved of dues by virtue of thirty years' consecutive state membership who shall never pay any more dues; (2) newly graduated medical men for not more than five years dating from graduation; (3) county health officers and full-time medical employees of the State, the two latter groups to continue paying the present dues of $5.00 per annum. The funds from this increased dues over and above dues now collected by the Association for members and Counsellors of the Association shall be allocated to the Committee on Medical Care and Public Relations to be used

by the committee in activities approved by the Board of Censors.

By unanimous vote, the Association approved the increase in dues.

Inasmuch as there will be no increased dues this year (the annual dues for 1947 already having been collected), the Board recommends that not more than $5,000.00 from its reserve be loaned to the Committee on Medical Care and Public Relations on which to begin setting up a program until annual dues to the Association are due next April, the loan to be repaid a thousand dollars a year, until repaid, from funds allocated to the committee.

The Association endorsed the recommendation but voted that repayment would not be indicated.

The Board recommends that those who have in the past contributed personally to the National Physicians Committee continue to do so this year on a voluntary basis, and those who have not contributed, do so this year.

The recommendation was concurred in.

Reports Of Vice-Presidents

Some divisional meetings were held last year although it was not possible to have them in each Division. County Medical Societies are functioning well as a rule, but in the small counties it is difficult to have scientific programs.

The Vice-Presidents, as members of the Post-war Planning Commission, took an active part in the deliberations of that body. The individual reports and their recommendations on medical care should be studied carefully by each member of the Association. Alabama is attracting more and more physicians but the question of equitable distribution of medical care has not yet been answered. The construction of hospitals will affect the location of physicians but local community interest is necessary in attacking the whole problem.

The Board recommends the adoption of the reports of the Vice-Presidents.

The reports of the Vice-Presidents were adopted.

Report Of The Secretary-Treasurer

In the one hundred years that have elapsed since the organizational meeting of the Association there have been many changes but the basic organization has remained constant since the War Between the States. The Secretary has recalled some of the early history of the Association and we are proud of the vision and soundness of our medical forbears.

The growth in membership to a new high is a reflection of the increased number of physicians in Alabama and their interest in organized medicine. It is hoped every eligible physician will associate himself with his County Medical Society.

It is noted that forty-three members, including five Life Counsellors and three Active Counsellors, have been claimed by death since our meeting a year ago. The Association mourns the passing of these members.

The audit reveals that the Treasurer has handled the finances of the Association in accordance with the authority given him and that the Association is financially solvent.

The Board recommends the approval of the report of the Secretary-Treasurer.

The Board's recommendation was adopted.

Committee Of Publication

The Journal of the Association has continued to operate at a profit, there being some $1800 left after payment of all expenses. The Board recommends approval of the report and expresses appreciation to the contributors and to the editorial staff.

The Association concurred in the Board's expression.

Reports Of Standing Committees

MENTAL HYGIENE

The members of this group have been extremely active during the year and have done much to promote mental health activities. There has been an impetus given to this program by the war and the Committee is to be commended for its activities. The Board recommends adoption of the report of this Committee.

The report was adopted.

CANCER CONTROL

The Committee is be congratulated on the splendid job it is doing. The Board repeats its approval of the creation of a Division of Cancer Control in the State Department of Health. The delay in staffing such a division in intimately associated with the over-all problem of securing training professional workers at the salary that can be paid under existing Merit System standards. The Board approves the inspection of cancer clinics by the American College of Surgeons so that top standards may be met.

The recommendation of the Committee that its membership be increased to five meets the approval of the Board. It is recommended that the ordinance of the Association on membership of the Cancer Control Committee be amended to provide for five members.

With regard to the Mobile Detection Clinic, it would appear that any such program should be integrated with the program of the Cancer Division of the State Health Department. A committee of this Association is not in position to actively direct such an undertaking, and, whereas the Board is sympathetic towards the expansion of cancer detection clinics, it feels that all such activities should be part of one over-all program. It is recommended therefore that this project be referred to the Health Department for consideration.

The recommendations of the Board were concurred in.

COMMITTEE ON MATERNAL AND INFANT WELFARE

The continued downward trend in both maternal and infant mortality is encouraging. The Board hopes there will be a continued expansion of the program providing supervision of well babies and providing immunization for this group.

The E. M. I. C. program has fallen off but until the Federal Government rescinds the present law new approvals are being given. The Board concurs in the feeling of the Committee that this E. M. I. C. program has served its purpose.

Referring to that part of the Committee's report relative to immunization of infants, the Board recommends that the Health Department give consideration to a combined tetanus and diphtheria toxoid.

The Board recommends adoption of this Committee's report.

The recommendation of the Board was adopted.

COMMITTEE ON POSTGRADUATE STUDY

The seminars held at the Medical College of Alabama have apparently been well attended and very well received. The proposal of the Committee therefore that similar seminars be arranged for Mobile so that physicians in South Alabama may more readily attend would appear logical. While the Board is not ready to abandon the circuit system of instruction, it realizes the difficulties in the way at the present time, and recommends that the seminar system be given a thorough trial during the next three years and that Association funds not to exceed $1000.00 per year be appropriated.

It is therefore recommended that Section 1 of the Ordinance on Miscellaneous Appropriations be amended to read:

"A sum not to exceed $1000.00 per annum to be utilized in providing postgraduate courses for physicians of the State."

The Association approved of the appropriation for the purpose stated.

MEDICAL ARCHIVES AND HISTORY

The activities of this Committee during the past year have been numerous, and it is interesting to note the varied groups in Alabama with corresponding interest. Appreciating the fact that the Medical School has a Committee on Medical Archives and History the Board feels that the Association should concur in the recommendation of the committee that it is duplicating work done elsewhere and should therefore be discontinued. The Board so recommends.

The recommendation was concurred in, that the Committee be abolished.

PHYSICIAN-DRUGGIST RELATIONSHIPS

A meeting of the Jefferson County physicians and druggists was held during the year with several hundred in attendance. Such meetings are valuable means of maintaining the pleasant relationship of physicians and druggists and are to be encouraged.

The Board suggests approval of the Committee's report.

The Committee's report was approved.

POSTWAR PLANNING COMMISSION

This Commission of course felt the impact of the loss of its Chairman, but the Board feels that in Dr. B. W. McNease a worthy successor has been chosen to carry on. The year under review was one of progress and the creation of a Health and Medical Care Council was one evidence of this progress. Formation of county chapters of the Council are in the making and the Board bespeaks the active cooperation and support of County Medical Societies in these councils.

The expansion of the Hospital Service Corporation and its broader coverage is encouraging. The more people avail themselves of these voluntary medical care plans, the less demand there will be for visionary, compulsory plans emanating from the National Capitol.

The Board recommends the adoption of this report, which, read in conjunction with the President's recommendation that its name be changed to Committee on Medical Care and Public Relations, means that this is the final report of the Commission as such.

The report was adopted.

Legislation

STATE

A new Governor and a new Legislature have been elected during the past year. Interim Committees of this Legislature have been considering problems that will confront them when they convene in regular session in May of this year.

Several matters of extreme importance to the Health Department and to the medical profession of the State are slated for consideration. Appropriations for the next two years will be made and the Health Department is requesting an increase in several items. For example:

(1) $100,000 extra for general health work to permit the employment of an adequate staff.

(2) $132,000 additional for county health work. Salaries of County Health Officers must be raised and new personnel must be secured to carry out well-rounded programs.

(3) To carry the blood test program $75,000 more per year is needed.

(4) The present state subsidy to tuberculosis hospitals of $1.00 per day is woefully inadequate. A minimum of $1.50 from the State is urged.

(5) To permit adequate salaries for physicians on the State Department staff the salary of the State Health Officer must be raised from its present level. At the present time this salary is fixed by legislative act. It is being proposed that the Health Officer's salary be fixed by the State Board of Health.

If the State is to acquire the hospitals that it needs there should be state participation in a building program. Bills to provide an amount from the State equal to that made available by the Federal Congress will be proposed. A construction program based on one-third federal, one-third state and one-third local will enable many of the poorer communities to acquire needed facilities. Physicians should make known to their legislators their support of these proposals.

The Board is recommending not only that this report be adopted but that the members of this Association pledge their active support to such a legislative program.

The recommendation of the Board was unanimously adopted.

FEDERAL

The most important Act passed by the Congress as it affects medical practice has been the Hill-Burton Act which became Public Law 725. This Act provides federal aid in a hospital construction program. Funds for surveys were provided this fiscal year but no funds for construction are as yet available. It is anticipated that there will be an appropriation available after July 1st, 1947.

Numerous bills covering medical care programs have been introduced. Their fate is of course not known yet but it is doubtful that any major legislation will emerge this year.

Federal Agencies

The U. S. Public Health Service has continued its cooperative relationship with the State Department. In particular, the programs against malaria and typhus through the use of D. D. T. have been largely financed and staffed by the Service. Personnel on loan has tided us over many difficult situations and today our tuberculosis program would be unable to function were it not for Public Health Service officers. Expanded funds for cancer control and for industrial hygiene are available through the Service this year.

The Children's Bureau has continued its active interest in maternal and child health and has made increased funds available for states, such as Alabama, with high maternal and infant mortality rates and inadequate state and local resources. The Slossfield Health Center continued to operate as a demonstration Center for Negro work, especially in the obstetric field, and this phase of the program was financed largely by the Children's Bureau.

Our Association with the Tennessee Valley Authority remained on a friendly footing and a cooperative program of health work was carried on throughout the Valley.

Appeal For Dr. Wallace Marshall From Mobile County

The Board, on account of the incompleteness of the evidence in the case, recommends the continuation of this hearing until the next meeting of the Board, the date of which will be furnished all parties concerned.

The Association approved the continuation of the hearing.

Recommendation Concerning The College Of Counsellors

The Board recommends that a committee of three members from the Association be appointed by the incoming President to study the number and equitable distribution of Counsellors most suitable for the changing conditions in our Association, and report back to the Association at its next annual meeting.

The recommendation received the endorsement of the Association.

Proposed Constitutional Amendments

In his Message to the Association a year ago, President Walter Scott recommended that the Constitution be amended in two particulars: (1) to make it permissible for all members in good standing in a county medical society to hold office in the Association; and (2) to authorize the allocation of funds of the Association for purposes not now recognized in the Constitution.

1. The first proposal, relating to eligibility for office, has been before the Association in one form or another a number of times. The pertinent portion of the Constitution (Section 4 of Article IV) now reads as follows:

"All members who have been members in good standing of a county medical society in Alabama for the five consecutive years immediately preceding any election to fill vacancies in the several offices of the Association shall be eligible to election to the office of president and vice-president."

Prior to 1922 only Counsellors were eligible for the offices of the Association. In that year it was proposed to open all offices of the Association to members who had been identified with the organization for five years, but the Association in its judgment saw fit to extend the privilege to the presidency and vice-presidencies only. It is believed that it would be well to recall the comments the Board made at that time:

"The plan of organization of the State Medical Association has for its main purpose the furnishing of a State Board of Health to the State of Alabama. As a medical organization its objects are to improve the standards of medical education, the ethical standards of the medical profession and the cordial relations of the doctors of the State. A far simpler plan of organization would meet all the needs of the medical profession as such, but if it shall function as the State Board of Health, then the organization must be more stable. It must have an established policy with which the citizenship of Alabama is conversant. That policy must be uniform and consistent and not subject to changes provoked by emotional propaganda advanced by untried leaders. The College of Counsellors is the element in the organization which gives it stability. Distinguished jurists and legislators of the State have frequently said that without the College of Counsellors the State Medical Association could not be trusted with the grave responsibility of administering the health laws of the State. In other words, if the membership of the annual business meeting of the Association was composed of an aggregation of individual members, each voting his individual opinion, it would be an irresponsible organization. The College of Counsellors, whose members hold office for a term of seven years and are distributed equitably among the several congressional districts, meeting with the Delegates who represent the organized medical profession of the several counties of the State, does form a stable organization with which the State Legislature is justified in treating. Any movement which would have a tendency to bring about a disintegration of the

College of Counsellors or in any manner impair its integrity as a component part of the State Association should not be entertained."

Now, as then, however, there is a difference of opinion as to the effect such a constitutional amendment would have upon the College of Counsellors. Said the Board in 1922: "The earnestness and sincerity of those holding to the two different viewpoints is not open to debate. Nevertheless the Board calls the attention of the advocates of these two different viewpoints to the fact that when the stability of the Association is any wise impaired, the Legislature would not be justified in retaining it as its Board of Health."

The quarter century that has intervened since these words were written find the usefulness of the organization unimpaired under the present constitutional provision. One wonders, then, in the face of unsettled conditions in almost all other lines of endeavor, whether the time is opportune to alter Section 4 of Article IV. In the opinion of the Board it is not. It is recommended, therefore, as a substitute for the proposal made by President Scott, that Section 4 of Article IV be amended to read as follows:

"All members who have been members in good standing of a county medical society in Alabama for five consecutive years immediately preceding any election to fill vacancies in the several offices of the Association shall be eligible to all offices except that of Censor.

That all clauses, paragraphs, or parts of clauses or paragraphs in the Constitution and By-Laws of the Medical Association of the State of Alabama in conflict therewith are hereby repealed."

The Board feels that the College of Counsellors is a roster of seasoned men who have demonstrated over a period of years a steadfast interest in a knowledge of the fundamental structure and policy and function of the Association and therefore is the group from which the Board membership should be drawn.

Difference of opinion prevailed regarding the limitation of membership on the Board of Censors to those who had been chosen Counsellors. At the same time, the concensus seemed to be in favor of a five-year waiting period before one would be eligible for office. However, in view of the fact that such period of waiting had not been a part of the recommendation relating to the proposed constitutional amendment, being in effect a new proposal, it was held that the matter would have to be carried over until the meeting of 1948, and it was so ordered.

2. The second proposed constitutional amendment relates to the first paragraph of Section 3 of Article XIV which reads as follows:

"The funds of the Association shall not be appropriated for purposes other than those which tend to uphold and maintain its organization, perpetuate its history and advance its interest and those of scientific medicine and public health."

It is proposed that this be amended by adding the words:

"Except a portion of its funds may be allocated for the purpose of defraying the expense of the annual meeting of the Association, including the expense of guest speakers and entertainment."

A year ago the Association approved that portion of the recommendation relating to the expense of guest speakers, limiting the amount for such purpose to $500 annually, including the Jerome Cochran Lecturer. The Board now recommends that this be further affirmed and combined with the item of expense in connection with the annual session by amending as follows Section 3 of Article XIV:

"The funds of the Association shall not be appropriated for purposes other than those which tend to uphold and maintain its organization, perpetuate its history and advance its interests and those of scientific medicine and public health, except that such portion of its funds as may be allocated by by-law may be used for the purpose of defraying the expense of the annual meeting of the Association, including the expense of guest speakers."

It is further recommended that Section 2 of an Ordinance of the Association entitled "Miscellaneous Appropriations," which now provides an honorarium of $100 annually for the purpose of defraying the expense of the Jerome Cochran Lecturer be amended to provide an amount not exceeding $1000 annually for expenses of the annual meeting and guest speakers, including the Jerome Cochran Lecturer.

By an aye and no vote, as required by Sec. 2 of Art. XXI of the Constitution, the amendment was unanimously adopted.

Resolutions

BY DR. J. P. CHAPMAN

"Whereas, The Alabama Field Army of the American Cancer Society during 1946 has completed its most successful year in the educational campaign against cancer; and

"Whereas, The organizational work in every county has been so thorough and effective that an ever-increasing number of workers have been enlisted in a year-round campaign against cancer; and

"Whereas, The Alabama Field Army has been most cooperative with the Cancer Control Committee, the State Department of Health, and the physicians in each county, therefore be it

"*Resolved*, That the Medical Association of the State of Alabama, meeting in Birmingham, April 14, 1947, express its appreciation and commendation for the continuing, active, enthusiastic and intelligent services of Mrs. Ray Meade, the State Commander of the American Cancer Society, and also the entire staff of workers comprising the Alabama Field Army."

The Board recommends approval of this resolution.

The resolution was approved.

BY DR. J. P. CHAPMAN

"To further the educational campaign against cancer in Alabama and to encourage the periodic physical examination for the detection of early cancer, the Alabama Field Army of the American Cancer Society is making plans for the purchase of a Mobile Cancer Detection Clinic. The

operation of such a mobile unit will be under the supervision of the State Cancer Committee at all times. The personnel for such clinic will be carefully selected from specialties in the field of cancer.

"The clinic will visit communities of the State by prearranged schedule, and with the approval of the County Medical Societies. Its operation will be similar to the State Tuberculosis Diagnostic Unit. Such units are very successfully operated in Oklahoma, Kentucky, and probably other states, under full control of their State Medical Associations.

"The Cancer Control Committee therefore wishes to present this request in the form of a resolution, and would urge its adoption and approval by the Medical Association of the State of Alabama."

The Board feels that the Mobile Cancer Detection Clinic Program should be integrated with the program of the Cancer Division of the State Health Department. The Board is sympathetic towards the expansion of cancer detection clinics, but it feels that all such activities should be a part of one-over all program.

Therefore, the Board recommends that this project be referred to the Health Department for further consideration.

The Board's recommendation was concurred in.

BY DR. FRANK C. WILSON

"Realizing that the application of anesthesiology in Alabama has lagged behind the other advances of modern medicine, and that the people of Alabama have not had available the fullest benefits of modern anesthesiology as in other states and communities; therefore be it

"*Resolved*, That the Medical Association of the State of Alabama, through its President, appoint a Standing Committee on Anesthesiology, whose function it will be to stimulate and promote a wider application of modern anesthesiology in Alabama."

The Board recommends approval of this resolution.

The recommendation was adopted, as was Part I of the Board's report.

PART II

REPORT OF THE BOARD OF CENSORS AS A BOARD OF MEDICAL EXAMINERS

In this field of its activity the Board submits the following statistical report for 1946:

Certificates of qualification issued physicians 179
(a) Physicians passing examinations March 19-21, '46 20
(1) Certificates issued 17
(2) To be issued after satisfactory internships 3
(b) Certificates issued after completion of internships July 1, 1946 14
(c) Physicians granted reciprocity 134
(d) Diplomates of the National Board of Medical Examiners 14
(e) Physician reinstated 1
(f) Chiropody renewal licenses issued 29

CERTIFICATES OF QUALIFICATION ISSUED MAY 4, 1946

Brown, James B.
Cale, Robert T.
Campbell, Henry A.
Carter, Richard D.
Christian, Kenneth G.
Donald, Thomas C., Jr.
Elmore, John Durr
Fargason, Crayton C., Jr.
Goodman, Seaburt
Johnson, Simon O.
Merrill, Frederick G.
Moody, Maxwell, Jr.
Pinderhughes, Charles A.
Pogue, Elbert Hugo
Robinson, Norman J.
Tippins, Henry K., Jr.
Wood, James G., Jr.

CERTIFICATES TO BE ISSUED AFTER SATISFACTORY INTERNESHIP

Bidgood, Willis D.
Crum, William B.
Gordon, Eugene W.

CERTIFICATES ISSUED AFTER COMPLETION OF INTERNSHIPS JULY 1, 1946

Brannon, Wade H.
Carlisle, Dyer, Jr.
Carmichael, Herbert N.
Cleveland, Hal, Jr.
Cotten, Howard B.
Davis, James A., Jr.
Hood, Willis S.
Littlejohn, James T.
Llewellyn, Raeburn C.
McGehee, Edward H.
Scott, Edward V.
Snoddy, Claude C.
Trice, Peter A., Jr.
Wakefield, John R.

RECIPROCITY APPLICANTS RECEIVED DURING THE CALENDAR YEAR OF 1946

Adkins, Hezekiah—Ky. ..... June 19 '46
Alves, Walter J.—La. ..... Aug. 23, '46
Armstrong, James H.—Miss. ..... Mar. 9, '46
Barelare, Bruno, Jr.—Md ..... Mar. 21 '46
Barr, Edward—Ohio ..... Apr. 15, '46
Baston, William P.—Ohio ..... Dec. 13, '46
Bell, Hugh V., Jr.—Ga. ..... July 8, '46
Best, Ralph Lee—Ark ..... Mar. 28, '46
Bibb, Robert C.—La. ..... Jan. 29, '46
Bixler, Thomas J.—Ga. ..... Nov. 6, '46
Blackburn, Cecil H.—Mo. ..... Jan. 31, '46
Blackburn, Lester M.—Ky. ..... Aug. 23, '46
Bracken, Frank L.—N. B. M. E. ..... Dec. 3, '46
Brock, William M.—Va. ..... Dec. 9, '46
Browne, William C.—Mich. ..... Feb. 18, '46
Bryant, Percy A.—Ga. ..... Apr. 30, '46
Burke, Daniel W., Jr.—La. ..... Oct. 30, '46
Burleson, Robert J.—Ky. ..... July 5, '46
Burrett, John B.—N. B. M. E. ..... Mar. 28, '46
Caldwell, Samuel W.—N. B. M. E. ..... Jan. 31, '46
Callahan, Alston—Miss. ..... July 25, '46
Campbell, Thomas M., Jr.—Tenn. ..... Feb. 18, '46
Carrangelo, John—Ark. ..... Sept. 24, '46
Ceravolo, Raphael J.—N. Y. ..... July 16, '46
Chitwood, John N.—Ga. ..... Aug. 23, '46
Clark, Charles E.—N. B. M. E. ..... Nov. 12, '46
Clark, Jean—Neb. ..... Dec. 31, '46
Cohen, Samuel K.—La. ..... Nov. 12, '46
Cole, Ramsey G.—Tenn. ..... Mar. 9, '46
Couch, Edwin W.—Tenn. ..... June 1, '46
Crenshaw, James F.—Mo. ..... Aug. 19, '46
Dale, Sebron C.—Miss. ..... Apr. 30, '46
Dark, Harold U.—La. ..... June 27, '46
Day, Robert C.—La ..... May 8, '46
de la Garza, William—Texas ..... Mar. 5, '46
Doggett, William W., Jr.—Ga. ..... Mar. 5, '46
Dozier, Jack L.—Pa. ..... Oct. 7, '46
Dunn, James Gee, Jr.—Ga. ..... Feb. 5, '46
Dunning, Guy G., Jr.—N. B. M. E. ..... Mar. 18, '46

Dyer, Sydney G.—Ky. Sept. 11, '46
Eichold, Samuel, II.—La Jan. 3, '46
Engelbert, William F., Jr.—Ind. Feb. 18, '46
Eppes, John K.—La. Jan. 3, '46
Ferguson, Anderson D.—Ga. Mar. 5, '46
Ferguson, Hal—Ohio Mar. 21, '46
Field, Charles H.—Ga. Feb. 18, '46
Fishbein, Harry—La. Dec. 16, '46
Freeman, Arthur M., Jr.—Tenn. Mar. 9, '46
Galbraith, J. Garber—N. B. M. E. Jan. 28, '46
Gayden, Lewis R.—Tenn. Jan. 29, '46
Glenn, Eugene B.—N. C. Mar. 28, '46
Goode, Norman J., Jr.—Mich Aug. 27, '46
Granger, Wayne H.—Texas Apr. 30, '46
Graves, Robert S.—La. Aug. 27, '46
Grimes, James T.—Mich. Apr. 30, '46
Gwynn, Henry B.—D. C. Apr. 15, '46
Hagood, Robert B., Jr.—Mo. Mar. 7, '46
Harris, Everett A.—Ill. June 11, '46
Hill, Joseph H.—Ohio Oct. 1, '46
Hipp, Harold R.—Ark Oct. 14, '46
Hope, John C., Jr.—La. Apr. 15, '46
Hubbard, Brannon, Jr.—N. B. M. E. July 5, '46
Hudson, Henry C.—La Mar. 28, '46
Hudson, Otis T.—Ill. Apr. 15, '46
Hudson, Victor T.—Tenn. Mar. 21, '46
Imler, Allison E.—Pa. Apr. 15, '46
Jackson, Thomas S.—Mo. Jan. 17, '46
James, Charles F., Jr.—Va. Jan. 3, '46
Johnson, Joe H.—Tenn. July 5, '46
Johnson, John F.—Ga. Dec. 21, '46
Joubert, Edward J., Jr.—La. May 2, '46
Keith, Gaines W.—Tenn. Oct. 8, '46
Kirschenfeld, Jack—N. B. M. E. Dec. 3, '46
Klapper, Margaret S.—La. Oct. 30, '46
Lee, Joseph M.—Md. Nov. 25, '46
Lewis, Lawrence C., Jr.—La. Feb. 18, '46
Lightcap, Clement A.—La. Feb. 18, '46
Lindeman, Frank H.—Miss Dec. 9, '46
Love, Cecil E.—Tenn. Nov. 26, '46
Lumpkin, Hoyt G.—Ga. July 16, '46
Luton, Norman S.—Ark. Sept. 19, '46
Lyles, Robin—Tenn. Apr. 15, '46
MacIntyre, Dugald S.—Mich. Feb. 9, '46
Maury, Franklin H.—La. Feb. 5, '46
May, William P.—Md. Jan. 31, '46
McLeod, John C., Jr.—La. June 11, '46
McNeal, Alice—Ill May 28, '46
Miller, Joseph B.—La. Apr. 9, '46
Millett, George W.—Ore. Oct. 30, '46
Mintz, Harvey H.—La. Apr. 15, '46
Mitchell, William B.—Ga. Mar. 25, '46
Moore, Elbert L.—Tenn. Sept. 16, '46
Neeley, William J.—Ga. June 27, '46
Nettles, Thomas E.—Miss. Oct. 26, '46
Norvell, Lester R.—Miss. July 20, '46
O'Dell, James W.—N. C. June 11, '46
O'Neal, Jesse P.—Texas May 11, '46
Oliver, Ernest B.—N. B. M. E. Jan. 29, '46
Oswalt, Guy C.—La. Dec. 21, '46
Otts, Octavius M., Jr.—La. July 16, '46
Owens, Arthur H., Jr.—Minn. May 18, '46
Paine, Charles H., Jr.—Ga. Dec. 30, '46
Paul, William G.—Okla. Mar. 28, '46
Peters, George S.—Ohio Apr. 15, '46
Petrik, Albert C.—Ill. Dec. 13, '46
Phillippi, Frank M., Jr.—La. Sept. 24, '46
Pilkington, John S.—Tenn. Mar. 5, '46
Pipes, James Lee—Ky. Apr. 15, '46
Porter, Mae E.—Tenn. Aug. 23, '46
Pratt, Alsey C., Jr.—Mo. Apr. 15, '46
Ramsey, Joseph H.—Mo. Oct. 1, '46
Rapp, Edwin W.—Ill. Sept. 19, '46
Rea, John Wren—Tenn. Aug. 23, '46
Rea, Robert C.—Tenn. Aug. 23, '46
Reque, Paul G.—N. B. M. E. Aug. 27, '46
Roberts, Henry J.—Tenn. Oct. 26, '46
Rogers, Joseph H.—Va. May 23, '46
Ross, Gordon L.—Pa. Nov. 15, '46
Russakoff, Abraham H.—N. B. M. E. Aug. 31, '46
Schear, Raymond S.—La. July 30, '46
Schrantz, Freeman S.—Tenn. Aug. 23, '46
Selikoff, Solomon J.—N. Y. Apr. 15, '46
Shafferman, Samuel L.—Ga. Nov. 6, '46
Singleton, G. W. F.—N. B. M. E. Aug. 14, '46
Smith, Robert C.—N. B. M. E. Sept. 12, '46
St. Amant, Chester P., Jr.—La. Apr. 8, '46
St. Peter, Montreville A.—Pa. Sept. 12, '46
Stephenson, Robert H.—Ga. Sept. 12, '46
Stevens, Wilkin R.—Va. May 18, '46
Strickland, Hubert B., Jr.—Ga. Dec. 20, '46
Sutherland, Archie R.—N. B. M. E. July 30, '46
Taylor, Arabion N.—Cal. Apr. 30, '46
Tice, William P.—Va. June 27, '46
Underwood, Ralph O.—Tenn. Feb. 5, '46
Virgin, William B.—La. July 30, '46
Walker, H. S. J., Jr.—Mo. Apr. 15, '46
Wayburn, Gates J.—Ga. Feb. 25, '46
Wear, Thomas R.—Mo. Jan. 3, '46
Weaver, Jerome A.—Mo. Dec. 16, '46
Weinrib, Joseph—N. Y. Jan. 25, '46
Whitfield, Frederick S., Jr.—Mo. May 28, '46
Whitfield, Joseph T.—Tenn. Jan. 3, '46
Williams, Arthur G., Jr.—La. Mar. 28, '46
Williams, Laura O.—La. Sept. 19, '46
Williams, Roy W.—Mo. Apr. 15, '46
Winsor, Carlton W.—Mich. Jan. 3, '46
Yeargan, Reagan L., Jr.—Ga. Apr. 15, '46
Yemm, Warren A.—Ill. Aug. 19, '46

CHIROPODY RENEWAL LICENSES ISSUED FOR 1947

AuCoin, William J., Mobile
Bauer, Marie H., Birmingham
Benitez, George W., Birmingham
Blotzer, Ellen L., Mobile
Blotzer, John S., Mobile
Carlisle, Alexander R., Montgomery
Carter Harry S., Florence
Clark, George E., Birmingham
Cooper, John M., Birmingham
Crowley, Coy H., Mobile
Crowley, Gentry B., Huntsville
Daniels, John E., Montgomery
Davis, Edith M., Birmingham
Draper, William L., Birmingham
Edwards, Charles M., Birmingham
Leighty, Fred G., Birmingham
Miller, John, Mobile
Oxford, Herman R. A., Tuscaloosa
Pearson, Joe P., Birmingham
Peterson, Bessie C., Birmingham
Plevine, Erich H., Birmingham
Plevine, Viola D., Birmingham
Riccio, Peter D., Bridgeport, Conn.
Rollings, Harry H., Montgomery
Sealey, Ariel L., Montgomery

Sealey, Elizabeth P., Montgomery
Silverman, Isidor, Birmingham
White, Juddie B., Birmingham
Wright, Thomas L., Selma

Part II of the Board's report was approved.

PART III

REPORT OF THE BOARD OF CENSORS AS A STATE COMMITTEE OF PUBLIC HEALTH

D. G. Gill, M. D.
State Health Officer

Administration

PREFACE

With the end of the War it was perhaps a natural assumption that many of the problems created by the War were over and that we might resume the course interrupted by the attack at Pearl Harbor. Such, however, was not the case and, as a matter of fact, there was accentuation of difficulties rather than relief. Inflation and the demand for trained personnel in all forms of medical and engineering endeavor placed the health worker in a dilemma. On one side was loyalty to the Health Department and on the other was the financial return available elsewhere. That we were able to retain as many workers as we did is a compliment to the health organization, but new personnel, so necessary for expansion, was hard to find. Salaries for the lower grades were improved but in the case of the trained specialist no relief was given and it was impossible to recruit new medical men in these fields. Nurses, too, were in demand and found other openings more attractive. In the face of the difficulties it is encouraging to report that real progress was made. County health service was maintained—very much on a skeleton basis in many instances but still a foundation on which to build anew. New low records were set in several of the communicable diseases, including typhoid fever, diphtheria, malaria and tuberculosis. The venereal disease program was pushed with renewed vigor, and emphasis was placed on the penicillin treatment of all early cases of syphilis and, of course, of gonorrhea. The Henderson blood test law was applied to additional counties and was readily accepted wherever it was offered.

The infant and maternal mortality rates recorded new lows and this in the face of a very high birth rate. The E. M. I. C. program operated at reduced levels but under the present law will continue in some form for at least another year. Grateful acknowledgement is made to the Children's Bureau for its help and the cooperative manner in which its help was rendered.

The cancer control program continued to grow and an increasing number of cases were referred to the clinics for diagnosis and treatment.

The U. S. Public Health Service continued to work in close harmony with the State and local departments and personnel on loan from them was indistinguishable from our own people. The D. D. T. programs against malaria and typhus were financed and largely staffed by the Service. The by-products of this D. D. T. spraying in the way of insect control has made it one of the most popular programs ever sponsored by the Health Department. The Service acquired the facilities formerly used by the Rockefeller Foundation for rabies studies and has set up a laboratory to serve the Southeastern States on virus diseases. Rabies studies are being continued.

After long anticipation the Hill-Burton Act became law as Public Law 725, but as passed contained only an appropriation for planning and nothing for construction. Much preliminary work remains to be done so that Alabama may qualify for federal aid if and when available. It is anticipated that Congress will make funds available for the fiscal year 1947-1948 but the proposed federal aid is limited to a one third contribution. If there is to be real progress in hospital construction it would appear that a contribution on the part of the State is also necessary. A three-way building program, one-third federal, one-third state and one-third local, would enable many communities, now in need of facilities, to acquire adequate hospitals. Legislation looking towards this end will be considered by the Legislature at its session in May. Any additional laws necessary to enable the State to comply with Public Law 725 will be prepared.

During the year the Department suffered the loss through death of Mr. T. H. Milford, its Chief Engineer and Director of the Bureau of Sanitation. He left a vacancy difficult to fill in a professional sense and a vacancy in the hearts of his co-workers that will always remain.

PUBLIC HEALTH EDUCATION

During 1946 this Division continued to strive to increase and strengthen the fortifications of the people of Alabama against diseases, using the usual means of further increasing their knowledge as to *what, why, and how,* to fight that which has already seized them, and to ward off those diseases not yet afflicting them. We have gone forward on the basis of known facts, to wit, that people, as a general rule, will not take kindly to any new idea of work unless and until they know what it is all about.

While we have not neglected the more limited opportunities of individual and group contacts, we have given first and chief consideration to the methods by which we might hope to reach the largest possible number of people, covering the greatest area, and working through channels the people use most, and through the use of which they get the greatest amount of pleasure. We have, just as in prior years, continued to use the four-fold media—literature, the press, motion pictures and radio.

We have a record of 548 motion picture bookings for the year, serving fifty-four County Health Departments, and some of the health officers have arranged for the showing of our films by the schools, thus giving the benefits of this visual education to many thousands of those who will be our citizens of tomorrow. We prize highly our motion picture library services

through this Division. It is probably reaching more people in a manner, and at the most impressionable periods in life, than any other of our media of services.

During the year 587 news releases dealing with public health were sent to the two daily newspapers in Montgomery and to the United Press and the Associated Press news services, thus making these daily releases available to all the papers in Alabama that subscribe to the services of these two agencies.

One of our favorite features is the *Weekly Health Chat,* prepared and sent out weekly to the Associated Press. They have called the office to say that this is a feature they hope we will continue to use. We also prepare and send out our regular weekly news releases, and these are used rather freely and extensively by many newspapers of Alabama. Of course there has not been so full a use of all our newspaper releases as we would have been had we not been handicapped by the shortage of newsprint. More than a few of our Alabama newspapers have reported to us, "We want you to keep releasing this material for us, and we shall be most happy to publish all of it we can with our painfully limited space superinduced by the shortage of newsprint."

For quite some years now we have maintained a series of radio talks entitled *Health Is Wealth.* In this series, weekly radio talks have been prepared for, and delivered via station WSFA in Montgomery. After each talk has gone on the air, it is mimeographed, and 325 copies are distributed as health education material. We think a great deal of this feature. At the time we put this series on the air (at present 9:15 each Saturday morning), it is estimated that we have a good clear coverage of more than twenty-five counties in Alabama, with potential listeners as high as one half million. We have no way, of course, of knowing exactly how many people listen to these radio talks, but we do have proof that they go far, and that a very great many people listen to us.

Along with other good health literature, we are still using to good advantage, we think, the thirty-six page booklet entitled *Public Health Is Many Things.*

One final word about our film library. We have on hand one hundred twenty-eight prints, representing twenty-three subjects. On some subjects we have more than one print. We offer this service to all the counties in the State, but unfortunately some of them have not been able as yet to avail themselves of it. It is our hope that very soon this service may cover every county's need for it.

MACHINE TABULATION

The Machine Tabulation Division, with the aid of tabulating machines, assists other Divisions in processing their records.

We prepare monthly, quarterly and annual report tables and indexes on births, deaths, stillbirths and marriages for the Bureau of Vital Statistics.

Statistical tables and alphabetical indexes are run for each county as completed on the mass blood testing program, provided by the Henderson Act for the Venereal Disease Division.

Weekly, monthly and annual tabulations on communicable diseases and venereal diseases are tabulated for the Bureau of Preventable Diseases.

Quarterly reports are tabulated for the Bureau of Maternal and Child Health on maternity and infant care cases under the Emergency Maternity and Infant Care Program.

Quarterly and annual reports are tabulated by this division for the Bureau of Administration on county organization activities and a special monthly tabulation is made on county organization activities for the Bureau of Sanitation.

Reports are also tabulated for cancer clinics, dental studies and the tuberculosis survey.

COUNTY HEALTH WORK

The record for the year covered by this report is one of personnel difficulties in local health services—difficulties heaped up, pressed down and running over, and accentuation of shortage of manpower so much in evidence during the war years. Two types of personnel were involved mainly: medical and nursing; and nonavailability cannot be attributed solely to prevailing salary scales. As a matter of fact, compensation in county health work in Alabama compares very favorably with that in other states, which also find themselves in the same dilemma.

Even so, the integrity of the sixty-seven units of operation, covering the entire State, has been preserved, through the willingness, in several instances, of practicing physicians to act as consultants to county health organizations, thus providing administrative direction to staff members charged with nursing, sanitation officer and clerical responsibilities. Counties so cared for were Calhoun, Clarke, Clay, Henry, Lamar, Marengo, Marion, Monroe, Randolph, Talladega and Winston. Two-county combinations under one health officer continued in Autauga-Chilton, Baldwin-Escambia, Bibb-Perry, Butler-Lowndes, Chambers-Lee, Choctaw-Washington, Coffee-Geneva, Coosa-Elmore, Fayette-Pickens, Greene-Sumter, Jackson-Marshall, Lawrence-Morgan, and Limestone-Madison. Counties fortunate enough to retain individual medical officers numbered twenty-nine. Only Cleburne remained uncovered.

Despite depleted staffs, volume of work done was creditable. More than 20,000 people received smallpox immunization, and in excess of 100,000 were given typhoid vaccine. Clinic visits by patients with venereal disease ran above 120,000, while visits to the tuberculous exceeded 21,000. Of particular note is the fact that nurses of the several County Health Departments conferred with mothers of more than 90,000 infants in the interest of their physical well-being, while those of preschool and school years were also receiving the services of staff members. Through the facilities of the State's laboratory system, results on nearly 300,000 specimens of a public

health nature were made available to the sixty-seven counties.

What of the future? It is freely predicted that hardly before 1950 will there be any relief in so far as additional health officer and nurse personnel is concerned. In the meanwhile those who carry on must do so in the same laudable way that has always been a characteristic of Alabama's public health organization.

PUBLIC HEALTH NURSING

The close of the year 1946 found ten public health nurses employed by the State Health Department, exclusive of nurses employed in the Venereal Disease Rapid Treatment Center in Birmingham. Five of these nurses are functioning on the consultant and supervisory level and five render direct service in connection with service supplied by the State to County Health Departments, such as tuberculosis diagnostic servive and venereal disease survey work.

The consultant group consists of the Director of the Nursing Division, one general supervisor, and three consultants in special fields, namely, maternal and child health, tuberculosis, and cancer. The tuberculosis consultant nurse is loaned to the State by the U. S. Public Health Service. Three additional general supervisors are needed in order to supply the consultant service which the County Health Departments need.

Consultant nurses employed by the State recruit nurses for the County Health Departments and provide in-service training for beginners and experienced nurses. This service involves program planning, analysis and evaluation of service rendered. In rendering this service the consultant participates in nursing activities in the counties. In this connection the state consultant nurses visited 300 homes and made 424 visits during 1946. They attended eighty-three clinics and held 675 conferences with health officers, nurses and allied professional workers.

Advanced accredited study in public health nursing and special fields was continued during 1946 although on a greatly reduced basis. Four nurses are on scholarships for public health study at the present time. One nurse returned from a four month's program of study in tuberculosis nursing. Six months experience in public health was provided for twenty-two senior cadets during 1946.

One hundred seventy-five nurses were in the employment of County Health Departments at the end of December 1946—nine supervisors and 166 staff nurses. Seventy-three of the 175 nurses are employed in Jefferson, Montgomery and Mobile Counties—fifty-six, eight and nine, respectively. Seven counties were without the service of a nurse. It is increasingly difficult to staff rural areas.

MERIT SYSTEM UNIT FOR COUNTY HEALTH WORK

Examinations were administered in August and September 1946 in the following series: County Health Officer I and II, Public Health Engineer, Meat and/or Milk Inspector, and Public Health Dentist. As of December 31, 1946, fifty-eight persons remained on provisional appointment. Examinations have now been given in all series except Public Health Nurse, War Emergency (which appointments are for the duration of the emergency due to the war only, and of whom no more than statutory, physical, and personal qualifications are required), and Clinic Nurse, in which there are no existing vacancies and only two persons on provisional appointment.

Revised pay scales in the following classes have been approved by the State Board of Health and the Merit System Council: Nurse in Public Health, Nurse Midwife, Public Health Nurse (War Emergency), and Public Health Nurse I, II, and III. The State Board of Health and the Merit System Council have approved revised pay scales for the following classes to become effective January 1, 1947: Sanitation Assistant, Scientific Aide, Sanitation Officer II and III, Public Health Engineer, Meat and/or Milk Inspector, Clerk I and II, and Typist I and II.

The Merit System Rules and Regulations have been revised in regard to leave policies for provisional, temporary, and emergency employees.

To fill the 421 positions occupied during the year, 497 persons were under employment. Of the total of sixty employees who were on military leave, only seventeen have returned to resume their duties.

BUREAU OF LABORATORIES

The activities and services of the Bureau of Laboratories for the calendar year 1946 are reviewed in this report and special comments are made on some of the activities that seem deserving of special mention. The activities of the two major Divisions, the Diagnostic Division and the Biologic Division, are discussed separately.

The Bureau faced many problems of postwar readjustment at the beginning of the year. The War necessitated the curtailment of many of the activities of the laboratories and the restitution of these services was the most pressing problem confronted at the beginning of the year. The shortage of technically trained personnel during the late months of the War made it necessary to close three of the Branch Laboratories and the reopening of these Laboratories was considered first on the readjustment program. The Selma Branch Laboratory was reopened January 15, the Tuscaloosa Branch Laboratory January 20, and the Anniston Branch Laboratory March 15.

Curtailment of the activities of the Mobile Branch Laboratory due to shortage of personnel continued throughout the year. Many of the specimens from this area were forwarded to the Laboratory in Montgomery.

The Decatur Branch Laboratory moved into new quarters in the County Health Department building near the end of the year. This move had been delayed more than a year due to failure to get equipment delivered. This Laboratory now has ample space and adequate equipment to take care of the specimens of the area the Laboratory serves.

The Henderson Act, passed by the Legislature in 1943, requiring a blood test on all civilians between the ages of fourteen and fifty, placed an

overwhelming load on the available laboratory facilities. In view of the fact that plans have been perfected for an acceleration of the program in 1946 it was decided that additional laboratory facilities must be provided. Accordingly, a special Laboratory to do only serologic work was set up in Birmingham. This Laboratory began operation in April and confined its activities to the testing of bloods collected under the Henderson Act. As the organization of the Field forces to carry out the provisions of the Henderson Act was under the Director of Venereal Disease Control, it was decided that the whole program could be better coordinated by placing the special Serologic Laboratory under his direction. This proved to be a wise decision as it was found that better coordination of the field forces and the Laboratory resulted.

Before the Serologic Laboratory got into operation in April the bloods taken under the Henderson Act were tested in the Central Laboratory in Montgomery. A total of 42,655 bloods were tested in Montgomery and these are included in the total of blood specimens for the year. The bloods done by the Serologic Survey Laboratory during the year are not included in this report.

DIAGNOSTIC DIVISION

The total diagnostic specimens examined by the Laboratories was slightly lower than the preceding year. However, in view of the fact that a large part of the increase in specimen load since 1940 has been due principally to blood testing for venereal disease, a decrease in the total specimens was expected when the special Serologic Laboratory began operation and assumed responsibility for the bloods to be tested under the Henderson Act.

The total number and types of diagnostic specimens done during the year were as follows:

Intestinal Parasites	
Feces for ova	25,476
E. histolytica	52
Enteric infections	
Cultures-blood	8,697
Cultures-feces	779
Cultures-urine	238
Malaria	9,972
Venereal Disease	
Venereal smears	47,875
Blood (Kahn)	352,432
Spinal fluid (Kahn)	1,087
Darkfield	523
Agglutination tests	11,580
Vincent's Infection	1,562
Diphtheria	
Cultures-diagnostic	2,814
Cultures-contact and release	733
Tuberculosis	
Microscopic smears	21,922
Meningococcus	
Spinal fluid	60
Rabies	
Smears for Negri bodies	1,509
Water	14,671
Milk and Dairy Products	29,441
Added water	297
Phosphatase test	2,373
Miscellaneous	6,498
Total	551,357

A total of 307 blood cultures were made for Brucella organisms. Out of this number fifty-three positive isolations were made. The Brucella isolations were almost equally divided between *suis* and *abortus* strains. The total number of cultures, 307, was only three more than the previous year but the number found positive, fifty-three, was an increase of twelve over the previous year.

A total of twenty-six isolations of Salmonella organisms were made during the year. The strains isolated and the number of each were as follows: S. typhimurium 14; S. enteritidis 5; S. bareilly 2; S. panama 2; S. montevido 1; S. newport 1; S. anatum 1.

BIOLOGIC DIVISION

The following products were prepared in the Biologic Division in 1946 and distributed by the Laboratories:

Rabies vaccine (Semple)—Treatments	2,639	
Diphtheria toxoid (alum)	104,480	ml.
Diphtheria toxoid (plain)	1,560	ml.
Typhoid vaccine	348,800	ml.
Schick test toxin	794	ml.
Sterile saline	2,594	ml.
Sterile distilled water	3,731,000	ml.
Silver nitrate ampoules	61,368	

The number of rabies treatments distributed showed an increase of 842 over the previous year. This is a reflection of the increase in the number of positive animal heads for rabies during the year. The demand for sterile distilled water continued to increase.

SPECIAL ACTIVITIES

1. *Serologic Evaluation Study.* The Laboratories continued to participate in the evaluation study of the serodiagnostic methods conducted by the U. S. Public Health Service. Check specimens of 233 sera submitted were tested by the routine standard Kahn method. The results of these tests show that Alabama obtained a sensitivity of 79.0 per cent and a specificity of 100 as compared to the control test which showed a sensitivity of 83.1 and a specificity of 100.

2. *Red Cross Blood Plasma.* The Laboratories were called upon to supervise the distribution of surplus blood plasma received by the American Red Cross from the armed forces after the end of the War. During the year a total of 16,115 units of plasma were distributed to hospitals, branch laboratories, County Health Departments and Red Cross Chapters throughout the State.

Bureau Of Maternal And Child Health

Although there are indications that some of the discontinued services will be reestablished, the downward trend has not been significantly checked. The end of 1946 sees the Bureau short

six necessary and important staff members: two obstetric consultants, two pediatric consultants, and two public health dentists. If the Bureau is to function to the best advantage, and give advisory and constructive service, these specialists are urgently needed. The vacancies have existed for more than one year, and it has been impossible to replace the lost personnel. The Division of Nutrition has its two members, and the secretarial staff is complete.

Activities include maternity clinics, child-health conferences, dental clinics, nutritional services, and the administration of the Emergency Maternity and Infant Care Program. The United States Congress made additional funds available for maternal and child-health services, and Alabama received a larger amount than in other years. If additional personnel could be secured, our services could be extended and expanded. More public health nurses are also needed. On January 1, 1945 there were five counties without the services of a nurse; while on January 1, 1947 there were seven counties without these services. Many of the nurses are paid in part from these funds. Fees are paid to physicians for conducting the maternity clinics where some 9,000 women came for service. So are fees paid to the physicians who conduct child-health conferences where mothers take their babies for regular health examinations. Some 34,000 school children received medical examinations and 5,748 children had dental care. These services were financed in part by the federal funds granted through the Social Security Board.

Other important needs of children are not provided by Alabama's maternal and child-health plan. It has been shown that one child in twenty can expect to spend part of his life in a mental institution. This might be reduced through a program of mental health that will provide expert guidance for the parents when signs first indicate that the child is emotionally upset. It has been estimated that half a million children have had, or are suffering from, rheumatic fever and heart disease. This disease is credited with killing more school-age children than any other disease. Alabama has no program to carry on a fight against this scourge.

Prematurity remains the greatest killer of infants. Proper and adequate care would probably save fifty per cent of these deaths. It is hoped that during the coming year a center for the hospital care of prematures will be established at the Medical College in Birmingham, and under the control of the pediatric faculty. Federal funds should be available for this service.

MATERNAL HYGIENE

Clinics for antepartum and postpartum services were held in thirty-six counties, and there were 3,410 sessions. This was approximately the same as last year, but the attendance was much better than in 1945. There were 39,939 patient-visits in 1946, an increase of 10,000 over 1945. The number that enrolled for care before the sixth month of pregnancy was 5,790, an increase of 864 over the last year. Of the total patients, 7,835 were tested for syphilis and 6,683 treatments were given. Pregnancy spacing or planned parenthood is considered a part of the complete maternity care program and is available at the clinics in twenty counties. Advice on this subject was sought by 1,030 women, or 291 less than last year.

The maternal mortality rate in 1936 was 66.0 per 10,000 total births, and it was 25.3 in 1946.

CHILD HYGIENE

Child-health conferences were held in thirteen counties, a loss of two from last year. Attendance however was better, as it was for maternity clinics. In 1945 there were 4,129 children seen in these conferences, and in 1946 there were 5,372, an increase of 1,243 over last year. There is every indication that more counties will have clinics in 1947. The infant death rate (under one year) in 1936 was 66.7 per 1,000 live births, and in 1946 it was 38.0.

MATERNAL AND CHILD-HEALTH SERVICES BY COUNTY HEALTH DEPARTMENTS

The nurses made 28,809 visits to 8,051 antepartum cases, an average of 3.6 visits per case. Visits to 5,656 postpartum cases were made, 13,316 in number, an average of 2.34 visits per case. A total of 42,125 visits were made in the interest of maternal health, an increase of 16,041 over 1945. For the promotion of infant health nurses made 35,203 visits to 5,848 infants, an average of 3.2 visits per child. This represents a decrease of 17,007 visits as compared with 1945. Preschool children received 25,401 visits, an average of 2.3 per child to 10,791 children. Some 4,689 nursing visits were made to crippled children. The decrease in the total number of visits may be due in part to the fact that for a great part of 1946 there were seven counties without public health nurses.

DENTAL HYGIENE

There were twenty-seven counties in which dental clinics were held. The 5,748 school children who attended the clinics made 12,286 visits and received 31,104 treatments. These treatments were prophylactic and corrective, including cleanings, fillings, and extractions.

NUTRITION

The nutritionists gave services in forty-five counties and were available for consultations, surveys, group meetings, and clinics and for direct service on the request of the nurses. The two nutritionists held 130 professional consultations, rendered direct service to 856 individuals, and gave numerous group talks. Maternity clinics, child-health conferences, and orthopedic clinics were attended so that the nutritionists' services were available to the surgeon. The senior nutritionist was a member of the Governor's Committee to study the food situation in a number of State institutions. As a result of this survey the inmates' diets have been improved in several of these institutions.

EMERGENCY MATERNITY AND INFANT CARE PROGRAM

This service to dependents of enlisted men continued a downward trend. During the year 4,370 maternity and sick infant cases were completed. Approximately 1.8% of the maternity cases and 4.5% of the sick infants received consultative service. Of the patients hospitalized the average stay for maternity cases was 7.2 days, and for infants 13.1 days.

One valuable and favorable feature of this program is the large number of maternity cases that were hospitalized. In 1944 the per cent hospitalized was 71.4, in 1945 it was 77.7, and in 1946 it had increased to 84.0. This is approximately double the per cent of cases normally hospitalized in Alabama. The program has provided adequate medical and hospital care to many who otherwise could not have afforded it. Of the sick infants 53.1% were hospitalized in 1944, 60.0% in 1945, and 56.0% in 1946. Authorizations for this care will continue for six months after the War is decalred to have ended. All cases then authorized will be completed before the entire program can be discontinued.

SLOSSFIELD HEALTH CENTER AND MATERNITY HOSPITAL

This center is operated by the Jefferson County Health Department and conducts clinics for child-health, maternity, venereal diseases, and tuberculosis. The public health nurses do a generalized nursing service in the district around Slossfield. During this year 22,943 visits to the clinics were made by 5,973 persons.

Four hundred and sixty-six mothers were delivered in the Slossfield Maternity Hospital in comparison to 399 in 1945. Besides the 466 mothers delivered in the hospital, the staff was responsible for eight home deliveries. This hossital is operated in connection with the Health Center and also serves as a place for Negro physicians to bring their private patients. A qualified white obstetrician is available at all times for consultation. So, also, there is a white qualified pediatrician. The nurses are supervised by the Director of the Nursing Division of the Jefferson County Health Department.

MACON COUNTY MEDICAL AND HOSPITAL CARE PROJECT

This service provides medical and hospital care for colored maternity cases in Macon County and for a few from a distance. There is a colored obstetrician on the staff of the County Health Department. Sick children were also hospitalized. During the year 116 mothers were delivered in the hospital by physicians. Nurse midwives delivered nineteen in the hospital and seventeen in the homes. There were sixteen major operations.

TUSKEGEE NURSE-MIDWIFE SCHOOL

After being in operation since 1941, this school was discontinued on June 30, 1946. During the past year two student nurses satisfactorily completed the course and were graduated. During the life of the school there were twenty-six graduates. One of these is on study leave and will return to Macon County. Two are on duty with the obstetric department of the John A. Andrew Memorial Hospital in Tuskegee. The others have left Alabama to practice in other states.

Bureau Of Preventable Diseases

EPIDEMIOLOGY

A downward trend in most communicable diseases became evident in this first postwar year. Typhoid fever decreased from 144 cases in 1946 to 64 cases in 1946; malaria from 2913 cases in 1945 to 1532 cases in 1946; and diphtheria from 697 cases in 1945 to 370 cases in 1946. This downward swing reflected the intensified efforts of the local health departments in their control programs.

Poliomyelitis was epidemic in 1936 and in 1941, and predictions were for another epidemic in 1946. But the 378 cases that occurred were, except in one instance, scattered over the State. Beginning in June a rather violent, but localized, epidemic broke out in Lauderdale County. The 113 cases reported in this one county were as serious as in any previous epidemic and the residual paralysis was, in many instances, more severe.

Measles and influenza reached moderate epidemic proportions, with 3996 cases of measles and 11,267 cases of influenza being reported.

VENEREAL DISEASE CONTROL

Up to July 1, the mass blood testing program moved at the same pace as it had since 1943. Lack of personnel and our laboratory bottlenecks held back the work. In April a special mass blood testing laboratory was set up in Birmingham. It was geared to examine three thousand to five thousand bloods per day. This made it possible on July 1 to change the pace from one county surveyed every two months to four and one-half counties a month.

The first six months brought completion of the follow-up in one county and the survey to two other counties. In these two counties 33,513 people were blood tested with 2,073 of them showing an original positive or doubtful test. The accelerated pace of the last six months carried the survey to eighteen more counties, and 299,135 persons were blood tested with 15,575 of these showing a positive or doubtful test. When the more rapid pace was established some phase of the work-preparation, education, mass blood testing, or follow-up was in operation in at least ten counties at any one time.

Intimately meshed with mass blood testing was the Rapid Treatment Center in Birmingham. The bed capacity had to be stepped up from three hundred and seventy beds to a capacity of nine hundred beds. From July 1 to December 31, 7,500 patients were admitted to this Center as compared with 4,005 for the first six months of the year.

The penicillin treatment of syphilis has practically outmoded the older, slower, clinic method of treatment which consisted of alternating courses of arsenicals and bismuth. Penicillin requirements of administration every two hours made it an impractical therapy for clinics. In order that infected syphilitics might receive

therapy, all syphilis treatment clinics, except nine, in the State were closed on August 31; but diagnostic and gonorrhea treatment clinics were continued.

From clinics, private physicians, and the mass blood testing program, 14,367 new cases of syphilis and 11,284 new cases of gonorrhea were reported. This is a decrease over the previous year.

CANCER CONTROL

The cancer control program has shown a steady growth in volume of service since its inception in 1943. In operation during the year were five clinics—two of which have weekly sessions, two have bimonthly sessions, and one has two sessions weekly. The Selma Clinic was discontinued early in the year.

There were 1072 persons approved for admission to the clinics. This represents an increase of fifty-five per cent over 1945 and 116% over 1944. Of the 1072 approved, 103 did not report to a clinic. Follow-up has been done either by letter or home visiting to these patients with the result that only seventeen of the 103 have not been accounted for.

Almost one-third of the physicians of the State have referred patients to the clinics. All new physicians and those returning from the armed services were given information on the services offered.

TUBERCULOSIS CONTROL

The Division of Tuberculosis Control continued to make progress during the year. In spite of the shortage of film and personnel, the case-finding program discovered more cases of active pulmonary tuberculosis and followed more contacts than any other previous year. The diagnostic clinics were continued in the counties, with mass survey work as an added weapon in finding new cases of tuberculosis in certain specialized groups.

There were 21,216 individuals examined by the diagnostic clinics, of whom 3,188 were found to be positive. In the mass survey, 32,155 were examined, of whom 140 were found to be positive. Because of the expanded case-finding and follow-up program and the number of tuberculosis beds in the State remaining about the same, more and more patients and families had to be instructed in isolation and home care.

INDUSTRIAL HYGIENE

Preliminary and environmental surveys were made in forty-one plants and mines. Approximately twenty thousand were employed in these industries. Samples of dust and other hazardous material in industry in the number of 184 were taken for dust counts, chemical quantitative analyses and biologic analyses. A comprehensive study of dust control methods was made in one of the larger mining industries. Numerous health hazards were brought to the attention of the management of industries.

Bureau Of Sanitation

The purpose of this Bureau is to establish and maintain, within financial and legal limitations, a state-wide program for the control of environmental conditions of public health significance. Broadly, the nature of its activities is administrative, educational, and advisory, as well as regulatory. Certain activities are directly a function of the Bureau, while others are integrated through the County Health Departments. This permits the delegation of problems and functions to personnel of varying degrees of technical capacity and leads to greater efficiency of effort.

With the expansion of the many programs carried on by the Bureau, it has become more and more expedient to delegate to county health personnel, services formerly rendered by personnel with the Bureau. The success of these programs depends largely upon the degree to which responsible county personnel are qualified to perform these duties, and also the ability of the Bureau to give adequate technical direction to the programs.

The war years seriously crippled the work of the Bureau in practically all phases of its endeavor. A large per cent of the engineers, technically trained and qualified to direct environmental sanitation programs, served in the armed forces. Sanitation officers in the counties, many of whom were graduate engineers, were called to the service or sought employment in fields that paid salaries more in keeping with their educational qualifications. The Bureau's work at the end of the war was at the lowest ebb since the middle of the depression in 1932.

With the close of hostilities, many of the engineers formerly associated with the Bureau resumed their positions in the organization. Of the nine engineers and one sanitarian who served as officers in the armed forces, only two elected to seek employment elsewhere.

Although it was necessary during the War to drastically curtail certain established programs, other programs were developed with the aid of funds and personnel supplied by the U. S. Public Health Service. The program inaugurated, such as DDT residual spraying and dusting, may prove in the future to be valuable in the control of many of our environmental diseases. Plans are being developed to incorporate these programs on the county level.

The loss of county personnel, resulting in an inadequate staff in practically all counties, permitted an opportunity to study the needs of the counties as related to varying degrees of technically trained men. As a result of the study, certain counties could support sanitary engineers, others public health engineers, and others sanitation officers of Classes II and III. The classification is necessarily a long-range program and its ultimate fulfillment is dependent upon many factors.

In November the Bureau's Chief Engineer and Director, Mr. T. H. Milford, was killed in an automobile accident. He had served in various capacities with the Bureau for eighteen years and had been its Director for the past four years.

The principal engineer in charge of water supply and sewage, Mr. A. N. Beck, was appointed to fill the position.

Functions other than those integrated through the County Health Departments reveal a steady and expanded growth. The division of water supply and sewage continues to work with municipalities, industry, and other agencies. To further the services rendered to communities through better trained operators, a water and sewage operators' school was organized at Auburn during the year. It is planned to hold these schools each year, increasing the depth of the subject matter in accordance with the indicated need.

GENERAL SANITATION

During the year 1946, 46,538 persons provided themselves with 10,077 new approved sanitation units consisting of 2,731 pit privies, 3,317 septic tanks, and 4,029 sewer connections. The restoration of 683 units of sanitation not effective in the protection of the public health was made for 5,193 persons. Thus, 51,731 persons were served through the installation of 10,760 (new and restored) installations. The work is still handicapped by the shortage of materials and labor. However, it will be noted that, in spite of these handicaps, 49 per cent more installations were made than during the preceding year, 1945.

The sanitation program in Montgomery was continued unabated, with the construction of 1,814 units of new approved sanitation. However, two other counties did outstanding work. They were Jefferson and Tuscaloosa Counties, with the construction of privies, septic tanks, and sewer connections in the amount of 1,930 and 1,130 respectively. Other counties having made more than 200 new installations for the year are: Baldwin, Calhoun, Colbert, Covington, Etowah, Lee, Mobile, and Talladega.

Following the termination of the War and the return of men from the armed forces, consideration was given to initiating training for sanitation officer personnel. The availability of qualified men enabled the Bureau to conduct four six-weeks' orientation training periods during the year, with a total enrollment of twenty-eight sanitation officer trainees. Twenty-seven of this number successfully completed the course and received assignments to duties in counties as county sanitation officers.

PUBLIC WATER SUPPLIES

In the year 1946, the scarcity of labor and materials, together with the over-all high cost of construction, restricted the water-works improvements to projects most urgent and necessary. Twenty-seven communities, however, completed essential projects at an estimated cost of $670,350, and twenty projects with an estimated cost of $1,732,800 were under construction at the end of the year. The estimated cost of these projects reflects the needed improvements that were deferred during the war years.

Federal funds are available through the Federal Works Authority to states and their political subdivisions for planning new water-works systems or improving existing systems. These advance loans to the communities have stimulated projects that are badly needed and also projects of a lesser degree of urgency. During the year, final plans and specifications were approved by this Department for twelve new water-works systems at an estimated cost of $678,850, and thirty-three projects to improve existing systems, representing a monetary value of $2,102,350.

The communities that received permits for complete new water-works systems are: Akron, Brent, Carrville, Crossville, Eden, Eclectic, Graysville, Helena, Jemison, Roebuck Plaza, Thomaston and Waverly. The communities of Brent, Crossville and Roebuck Plaza completed their systems and the supplies placed on record. The construction of the new water-works systems at Alexander City, Eden, Eclectic, Graysville and Jemison were well under way at the end of the year.

Major improvements to existing plants at the end of the year were under construction at Birmingham, Cullman, Hanceville, LaFayette, Opelika, Russellville, Tuscaloosa and Warrior. The communities of Andalusia, Ariton, Clayton, Ozark and Winfield were making new wells as additional sources of supply.

Inspections are made of all public water supplies at least once during the year for the purpose of checking the water-works equipment, checking operating procedure, giving instructions to operating personnel, and advising responsible water-works officials concerning water-works problems. In most instances, reports, including recommendations, are submitted to the proper officials covering each individual inspection. Two hundred and sixty-nine inspections were made during the year, exclusive of the inspections made by the sanitary engineers in Jefferson County.

The 297 public water supplies submitted a total of 14,671 samples to the Laboratories for bacteriologic analysis. The State Laboratory and its branches made the analysis of the water samples submitted and the reports of the analyses were interpreted by the engineers in the Department.

The Department engineers spent considerable time in consultation with practicing engineers and representatives of federal agencies. In addition to the major activities, twenty-six supplies were reported to the U. S. Public Health Service for its consideration in certifying the supplies for use by the interstate carriers. Forty reports covering the inspections of the watering point sanitation were also submitted to the Public Health Service for appropriate action.

SEWERAGE

The planning of sewerage works was stimulated during the year by the Federal Works Administration by advancing to the municipalities the cost of preparing plans and specifications for new systems and improvements to existing systems. Twenty-six proposed sewerage works projects, with an estimated cost of $3,951,000, were approved and permits were issued for the construction.

The construction of sewerage works, however, was held to only those projects which were considered urgent, due mainly to high cost of construction. Only six projects, with an estimated cost of $385,000, were completed. Sections or parts of ten other projects were started and were still under construction at the end of the year. The total estimated cost of the ten projects is $1,692,000. The work under contract, however, will not exceed $500,000.

Realizing the need of water pollution control in the State, an effort was made to evaluate, in a preliminary way, the existing conditions of streams in the State. While on their regular assigned duties, the engineers visited municipalities and industrial plants that are likely to be discharging waste to receiving streams. Information, where available, was secured from industries relative to the products produced, the waste discharged, treatment of waste (if any), and the stream receiving the waste. The quantity of domestic sewage, and the receiving stream was obtained from the industries and the communities. The average flow of the receiving streams was contributed by the U. S. Geological Survey.

A preliminary report of the survey has been prepared. In addition to the body of the report, there are included maps of each major drainage area showing the streams in the area, together with calculated deficiencies in stream flow as related to the pollutional load. The extent of the calculated deficiencies downstream below the discharge is also indicated.

The study that was carried on during the year was of a preliminary nature. Sufficient study, however, was made to determine the need of additional information before any definite conclusions or final recommendations could be made on any particular problem.

A more detailed pollution study has been made of the Warrior River Basin by the Professor of Sanitary Engineering at the University. The report of this study should be available soon.

MALARIA CONTROL

Malaria control operations on major impoundments were, with the exception of Gantt, Point A and Purdy, successful in controlling malaria mosquito production at a reasonably safe level. The normal operating water levels of both Gantt and Point A were maintained at higher elevations than was the practice in past years. This resulted in continuous flooding of uncleared areas which, together with inadequate larviciding, was responsible for great *Anopheles quadrimaculatus* mosquito production. These lakes were visited during the mosquito breeding season and recommendations designed to increase the efficiency of mosquito control were submitted to the owning agency. Unsatisfactory mosquito control on Lake Purdy was due principally to inefficient larviciding resulting from the lack of suitable equipment. Shoreline maintenance work was in progress on this reservoir during the latter part of the year and the owning agency has been advised of the necessity of procuring new and adequate larviciding equipment prior to the next mosquito breeding season. The impounding of a water supply reservoir for the City of Opelika during the early part of the year increased the number of major impoundments within the State to twenty-six.

The year 1946 saw the first large scale use of DDT as a larvicide for controlling production of *Anopheles quadrimaculatus* on major impoundments. The Tennessee Valley Authority applied, with airplanes, approximately 3,800 gallons of twenty per cent DDT concentrate to its reservoir in Alabama. This material was applied at the rate of 0.1 pound of DDT per acre of water surface. It was found that this rate of application was adequate for mosquito control and was not harmful to the valuable forms of aquatic life. During the year the new weed-killing chemical 2-4-D was used in the control of vegetative growths in and along the margin of impounded waters. This chemical is not toxic to fish and other forms of beneficial aquatic life when applied as recommended. The use of 2-4-D provides a new approach to the control of aquatic vegetation associated with mosquito production.

Pre-impoundate studies were made and reports prepared for the following proposed reservoirs on the Alabama and Tombigbee-Warrior River systems: Choctaw Bluff, Clairborne, Miller's Ferry, Jones' Bluff and Demopolis. These reservoirs are under the jurisdiction of the U. S. Engineers. Construction activities are contingent upon funds to be appropriated by the National Congress.

Pond construction, somewhat restricted during the war, was greatly accelerated during 1946. Interest in farm fish-ponds and the granting of subsidies for the construction of stock watering ponds under the Soil Conservation Program stimulated this activity. The return of personnel who had been on military leave while serving with the armed forces made it possible to resume supervision through the local health departments of minor impoundments on the scale approaching that carried on during 1940 and 1941. At the end of the year there were on record 1,468 ponds having an area of 5,476 acres and affectng 214,-693 people. The amount of work during the year incident to placing the ponds under permit was about twenty per cent of the total amount of work done since the regulations were adopted in 1927.

The State Department of Health and the U. S. Public Health Service jointly operated two malaria control programs. Malaria control operations in military areas were greatly reduced following the end of the war. Entomologic inspections were conducted at five army air fields, and maintenance of drainage systems was required at three fields.

The DDT residual house spraying program, inaugurated in portions of six counties during 1945, was expanded to include parts of twenty-one counties. Its sole purpose was to prevent malaria transmission by using DDT to kill mosquitoes infected with the disease. In order to obtain the greatest benefit from the funds expended, the selection of areas for DDT treatment was based upon the seriousness of malaria. The counties and portions of counties selected

for DDT residual house spraying was based upon a statistical study of the malaria deaths occurring during the period of 1938-1942, inclusive. The program was operated, county-wide in Geneva, Greene and Washington, and in portions of the following counties: Autauga, Baldwin, Bullock, Clarke, Colbert, Crenshaw, Dallas, Elmore, Hale, Lamar, Lowndes, Macon, Marengo, Monroe, Montgomery, Perry, Sumter and Wilcox. A five per cent DDT spray prepared by diluting DDT concentrate with water was used for all spraying operations. This spray was applied to the interior walls, ceilings, doors, window screens, and porches at the theoretical rate of one quart per 240 square feet. As the spray was effective for about four months, the houses received two treatments, one during March-June and the second during July-September. A total of 104,414 house treatments were made during the year. This program was carried out at no expense to the local governments. It was enthusiastically received by the people, which was due not only to the prevention of malaria but also to the incidental control of other household pests such as flies, bedbugs, pest mosquitoes, and a reduction in the roach population. The federal allocation for fiscal year 1947 will not permit DDT residual spraying operations on the same scale as carried out in 1946. In an effort to expand rather than reduce the program and to stimulate local interest in DDT spraying, a plan for local participation was presented to the health officers of those counties in which spraying had been performed. The objective was to provide DDT treatment on a county-wide basis and lay the groundwork for an organized DDT spraying program that might be financed locally when federal subsidization is withdrawn. Estimates and plans of operation were prepared for each county in which the 1946 program was operated and transmitted to the County Health Officer for submission to the county officials. At the end of the year, Autauga and Wilcox Counties had approved the plan and it is expected that at least eight additional counties will do likewise.

The Farmers Home Administration requested information regarding DDT residual house spraying and the feasibility of a program designed to promote voluntary use of DDT by clients of that agency. This resulted in demonstrations of DDT residual house spraying operations by FDA personnel to their clients in all counties. This program through which the individual bore the cost is reported to have been highly satisfactory and the FHA plans a similar program for 1947.

DDT provides a new approach to municipal mosquito and fly control. During May the City of Demopolis decided to conduct a DDT house spraying program and purchased DDT concentrate and equipment necessary for its application. Instruction was given employees of the city in the application of DDT residual spray and by the latter part of July 1 about 1,000 houses had been treated. In view of available information, Demopolis is the first city in the United States to carry out a municipally financed DDT house spraying program. Later in the summer Thomasville and Luverne carried out similar programs. These towns experienced a great reduction in flies and mosquitoes and were enthusiastic about the program in general and will continue the work in 1947. Plans and estimates of cost have been prepared for all incorporated towns and cities situated in counties which will receive DDT treatment and it is anticipated that about twenty-five towns will sponsor spraying programs in 1947.

TYPHUS CONTROL

The activities of the Division of Typhus Control during the year included advisory service in rat-proofing, rat infestation surveys, extermination campaigns, collection of entomologic data and the experimental use of a 10% DDT insecticide powder in the control of the rat flea, the agent responsible for the transmission of endemic typhus fever (Brill's disease) from rat to man.

Funds were allocated to the State by the U. S. Public Health Service for typhus control work in those counties reporting the highest typhus incidence. Of the seventeen counties in Alabama that received approval on the basis of reported typhus cases, programs were operated during the year in the following counties: Barbour, Calhoun, Covington, Crenshaw, Dale, Dallas, Geneva, Houston, Jefferson, Mobile, Montgomery and Pike. Several counties were set up for operation in 1945; the majority in November.

Tabulated reports of typhus control activities in the above listed counties show the following: 83,726 premises inspected, 62,442 premises treated, 273,708 pounds of DDT powder applied, 43,572 pounds of poisoned bait, and 2,918 gallons of arsenic water distributed, and 6,060 pounds of hydrocyanic acid gas used for gassing rat harborages. A total of 116,993 man-hours of supervision and labor were furnished by the U. S. Public Health Service exclusive of 24,753 man-hours of supervision and labor furnished by the State and participating counties.

About ninety rat extermination campaigns carried out in some sixty municipalities, giving from one to four coverages each, were conducted under the supervision of the Typhus Control Division. Assistance was also given to organized programs for the rat proofing of business establishments in the cities of Brewton, Dothan, Eufaula, Anniston and Mobile. Programs in the cities of Brewton and Dothan were terminated in April. Reports of rat-proofing activities in the cities of Eufaula, Anniston and Mobile for the year show that approximately 900 establishments were surveyed for rat-proofing and 285 establishments rat-proofed. The total estimated costs of the programs for the year in the three cities was $15,500 which was assessed against property owners according to the costs of labor and materials used for the rat-proofing and rat eradication of the buildings.

Entomologic data, observations, and reports from the counties indicate a general reduction in the flea index and rat population. A comparison of the number of typhus cases shows 443 cases reported this year and 603 cases reported last year, a reduction of 26.5%.

To evaluate further the work being carried on, and to plan areas of operation for the year 1947, studies are now being made, and entomologic data collected in those counties located within the typhus area. From this information probable foci of typhus infected rats can be determined and suppressive measures for the control of typhus fever can be concentrated in the needed areas.

INSPECTION

At the end of the year nine counties had one or more men assigned full-time to inspection duties, thirty-one had a full-time sanitation officer or veterinarian devoting part-time to food inspection, eight had a full-time sanitation officer serving two counties each, and nineteen had no inspection program.

Food sanitation ratings were made in forty-nine counties. The numerical average of these is 87.8 which is two points lower than for 1945. However, this apparent decline in the average condition of food establishments may be largely due to quite low preenforcement rating figures in four counties where inspection programs had never been conducted previously or where they had been discontinued for one or more years. Four food-borne epidemics involving forty-two persons were reported during the year. However, verbal and other unofficial reports of occurrences for which no epidemiologic data were submitted indicate that this figure is incomplete.

Advisory assistance on milk sanitation was rendered in fifty counties. Thirty-one milk sanitation ratings were made covering forty cities and two counties. The weighted average of the retail raw milk ratings was 76.4, as compared with 81.8 in 1945, while that for pasteurized milk was 80.0 as compared with 80.2 in 1945.

There were about 1,000 dairy farms and seventy-one pasteurization plants under supervision of the various County Health Departments. These sold about 90,000 gallons of milk per day, an increase of 8% over 1945 and of 225% over 1941. About 83% of this milk is pasteurized. Fourteen new pasteurization plants were constructed during the year and eight of these in cities where no pasteurized milk had previously been available.

Considerable work was done during the year on the preparation of tourist and trailer camp regulations as well as on revision of the food regulations. However, adoption of both was held up awaiting more settled conditions, particularly with regard to building materials and equipment.

The supervision of oyster shucking and crabmeat picking plants was continued. The State's participation in the meat plant sanitation program started last year was practically discontinued at the end of the first quarter due to the resignation of the veterinarian employed for that purpose.

DRAFTING

The work in the Drafting Division for the year 1946 showed clearly the trend of State and National activities as the country changed once more from a state of war to conditions of peace.

Malaria control continued to increase its activities in the field of DDT spraying. These spraying groups called for more and better beat maps originally traced from aerial photographs. A guide sheet was constructed in the Department which standardized the width of roads, types of roads, size of houses, borders, and lettering. This standardization led to a more uniform group of prints easily read in the field. During 1946 eighty-six such maps were drawn with approximately 250 prints mailed to the various counties.

The typhus surveys begun in 1945 were finished during the early part of 1946. With the completion of those surveys, various charts and maps for spotting typhus cases were made.

With the completion of the library shelves in the latter part of 1945, the technical library of the Bureau of Sanitation was installed in the Department. During the year 1946, the library gathered a valuable collection of technical magazines, journals and pamphlets. That collection is still steadily growing and is proving an invaluable aid to the entire Department.

Approximately 3,000 prints were distributed during the year.

Drawings for the year 1946:

Malaria charts	12
Typhus maps	20
Sanitation reports	9
Sanitary surveys	34
Sketch maps	86
Plan and profiles	17
Miscellaneous charts and maps	46
Total	233

In addition to all the departmental work, the drafting section has made many charts, maps and miscellaneous stencils for the various Bureaus of the Health Department.

BUREAU OF VITAL STATISTICS

During the year 1946 more records were received by the Bureau of Vital Statistics than have been recorded during any previous year. A total of 180,602 original records, including 5,777 delayed records of birth, were officially filed. In addition to these newly filed records, certificates were prepared and filed for 368 adoption and 346 legitimation cases in compliance with statutory provisions. Cooperative work has been continued with the federal Bureau of the Census of the U. S. Public Health Service in an effort to improve registration throughout the State. Much field work needs to be done if complete and correct registration is to be attained.

The end of World War II did not reduce the need for certified copies and vital information contained in birth, death and marriage records. The demand for these services has been continuous throughout the year with the number of requests averaging around four hundred daily. During 1946 a total of $22,322 was received in fees. This sum represents 44,644 certified copies including 13,808 copies issued without charge for use by the Veterans Administration. During 1945 a total of $35,255 was received in fees representing 70,510 certified copies. Additional copies totaling 3,188 were issued for the

Veterans Administration. Veterans and their dependents find that one or more certified copies of birth and marriage records are needed in order to obtain pensions and other benefits under jurisdiction of the Veterans Administration. Death certificates of deceased veterans are essential records and will be required in increasing numbers. National mobilization for defense and war brought about an appreciation of the value of vital records as a source of legal proof of American citizenship, age and family relationships which would not likely have otherwise been attained. The Veterans Administration, Social Security Board, Public Welfare and many other agencies, public and private, find vital records adequate in establishing claims, for determining eligibility for benefits and many financial, legal and social considerations. These many facilities are growing in number and are extending their services to an increasing population. Medical and social progress is developing a growing need for statistical information valuable in improving the efficiency and effectiveness of our public health program and of our medical care plans now being formulated.

Correcting records is a necessity and consumes a great amount of clerical time. During 1946 a total of 10,936 corrections affidavits were processed. In other words, approximately one-fifth of all records from which certified copies were made had to be corrected. Attendants at birth and death are responsible for the preparation of vital records and it is they who must be credited with a vast accumulation of poorly prepared records dating back to 1908, when the central registration of vital records was begun in Alabama.

As a means of correcting obvious errors and in order to complete records received currently the Bureau mailed out 14,030 query forms during 1946 and received 10,117 replies to these. For a discussion of birth querying and an evaluation of the quality of our records see the article appearing on pages 97 and 98 of the August 1946 issue of The Journal of the Medical Association of the State of Alabama. A photostat copy of each birth certificate filed is mailed to the parents along with a correction blank to be returned with indicated corrections which need to be made. This system works well and contributes to correct and complete records. Prompt querying of death records is essential and every doctor who receives a query relating to cause of death should give it his immediate attention. The cause of death is too often ill-defined or not given. A measure of this weakness is the great number of deaths that must be listed in the ill-defined and unknown-cause category of mortality statistics. Diseases of the heart and accidents are causes of death which frequently have to be queried before a specific cause can be coded for statistical purposes. The medical profession cannot afford to discount the importance of public health statistics. The reliability of these statistics depends directly upon accurate and complete birth and death registration.

TRENDS IN VITAL STATISTICS

Deaths: Alabama's general death rate in 1946 was the lowest in the State's past thirty-one year vital statistics history. A provisional report for 1946 showing mortality statistics in detail will appear in an early issue of The Journal of The Medical Association of the State of Alabama. There were 24,305 deaths during 1946 with a rate of 8.1 as compared with 25,039 in 1945 when the rate was 8.7 per 1,000 population. The annual average for the five-year period, 1941-1945, was 26,601 deaths which occurred at a rate of 9.2 per 1,000 population.

A continued decline in infant mortality is revealed by the 1946 provisional report which shows that 2,962 deaths among infants under one year of age occurred at a rate of 38.0 per 1,000 live births. The total for 1945 was 3,120 with a rate of 42.9 per 1,000 live births as compared with 3,391 infant deaths with a rate of 45.7 for the year 1944. During the five-year period, 1941-1945, the number of infant deaths averaged 3,483 annually with a rate of 48.2 per 1,000 live births. The Alabama infant mortality rate is high in comparison with the national average (35 per 1,000 live births during 1946). The continued decline denotes great progress in the field of infant care as do statistics on maternal deaths, of which there were 203 in 1946, with a rate of 25.3 per 10,000 total births, compared with 230 in 1945 with a rate of 30.7. During the five-year period, 1941-1945, the average annual maternal death rate was 38.9 per 10,000 total births. It is gratifying to know that infant and maternal mortalities have continued to decline even though there has been a sharp increase over previous years in the number of births. Of all maternal cases reported, 5.7 per cent more were attended by physicians in 1945 than in 1941. The number of hospital deliveries in 1945 was 18.6 per cent above that of 1941. The benefits of adequate prenatal and postnatal care are without doubt reflected in the reduced infant and maternal death rates. Another index of improved health services is the

Ten Major Causes of Death

Cause	1946		1945		Average 1941-1945	
	Number	Rate	Number	Rate	Number	Rate
Diseases of heart (90-95)	5,266	174.6	5,195	174.0	5,052	174.6
Intracranial lesions (83)	2,330	77.3	2,417	81.0	2,359	81.5
Cancer, all forms (45-55)	2,227	73.9	2,209	74.0	1,977	68.3
Accidents (169-195)	1,917	63.6	1,890	63.3	1,995	69.0
Nephritis, all forms (130-132)	1,892	62.7	2,101	70.4	2,517	87.0
Pneumonia, all forms (107-109)	1,101	36.5	1,275	42.7	1,452	50.2
Tuberculosis, all forms 13-22)	1,094	36.3	1,177	39.4	1,305	45.1
Influenza (33)	408	13.5	413	13.8	620	21.4
Diabetes (61)	344	11.4	360	12.1	355	12.3
Syphilis (30)	319	10.6	366	12.3	404	13.4

stillbirth rate which was 28.5 per 1,000 total births, with 2,289 stillbirths recorded. The five-year (1941-1945) average shows an annual stillbirth rate of 31.0 per 1,000 total births. Although the crude death rate and the stillbirth rate is at a minimum, it is hazardous to draw conclusions because reporting of these events is far from complete and there is no way of knowing whether the reporting was better or worse in 1946 than it was in previous years.

Of the principal causes of death, heart diseases, cancer and accidents show increases over 1945. Accidents displaced nephritis to become the fourth ranking cause of death. Diabetes came up from tenth position to displace syphilis as the ninth major cause of death. Mortalities due to intracranial lesions, nephritis, pneumonia and tuberculosis show a marked decrease from previous years. While the downward trend of deaths from tuberculosis continued in 1946, there is always just reason to be concerned because of the impact that this disease has on individuals during the early years of maturity. The table above shows the number and rate for each of the ten leading causes of death during 1946, 1945 and for the five-year average, 1941-1945.

The 1946 provisional report shows a decrease in the number of deaths during the year from contagious diseases with the exception of measles. Although deaths from whooping cough dropped off sharply in 1946, the thirty-eight deaths from this cause make a tragic commentary on the failure to immunize all babies against the disease. Another cause for concern is the number of deaths from diphtheria. Despite a decline of nearly one-half in the number of deaths from this communicable disease, the fact remains that the thirty deaths that did occur in 1946 from this disease could have been prevented by immunization. Declining death rates from malaria and typhus fever reflect the control work and DDT spraying and dusting that has been carried on in many localities. The table below shows the numbers and rates for this group of causes for 1946, 1945 and the 1941-1945 average.

Deaths from Communicable Diseases

Cause	1946 Number	1946 Rate	1945 Number	1945 Rate	Average 1941-1945 Number	Average 1941-1945 Rate
Measles	47	1.6	5	0.2	50	1.7
Whooping cough	38	1.3	85	2.8	108	3.7
Meningitis	33	1.1	61	2.0	50	1.7
Diphtheria	30	1.0	59	2.0	54	1.9
Malaria	30	1.0	34	1.1	69	2.4
Poliomyelitis	21	0.7	22	0.7	25	0.9
Typhoid fever	11	0.4	18	0.6	17	0.6
Typhus fever	8	0.3	41	1.4	31	1.1
Scarlet fever	1	....	1	....	4	0.1

Births: Birth registration reached an unprecedented height during 1946. A total of 77,922 births were registered with a rate of 25.8 per 1,000 population. In 1945 a total of 72,680 was recorded at a rate of 25.1 per 1,000 population. The five-year average, 1941-1945, shows 72,232 births with an annual rate of 25.0. Thus, it is seen that the demographic history of past war periods is repeating itself. Returning members of the armed forces from overseas and repatriation on a large scale have resulted in a spectacular rise in the birth rate. It is significant that the sharpest rise followed an increase in the number of marriages after a lag of about twelve months. Throughout 1946 the birth rate grew and the increased number of marriages will insure a continued record-making birth rate for at least another year.

Marriages and Divorces: The total of 56,284 marriages and 14,025 divorces recorded during 1946 is the highest ever attained during one year in Alabama. The number of marriages recorded was 27.7 per cent above the 1945 total and 19 per cent above the previous high mark of 1942. These statistics show that one marriage was dissolved by divorce for every four marriages performed in Alabama during 1946. This is not a new high record. During 1945 one divorce was granted for every 3.6 marriages performed. As in the case of the rising birth rate, interpretations of these statistics must take into account that the war years are characterized by the absence on overseas assignments of large numbers of men of marriageable age, with a consequent postponement of marriage and creation of a backlog of delayed marriages. It seems reasonable to assume that much of this backlog has been absorbed since the termination of hostilities. An increase in divorces is also a phenomenon associated with war periods. A continued high divorce rate will depend largely upon the pressure of economic and social conditions assuming, of course, that divorce laws of Alabama remain essentially as they are now.

Part III of the Board's report was adopted, as was the report as a whole.

REVISION OF THE ROLLS

The next order of business being the revision of the Rolls of the Association, the Secretary was directed by President Grote to proceed without interruption in the absence of objection. As a preface to the revision of the Roll of County Societies, the Secretary said:

"County Medical Societies, to comply with the Constitution, must meet certain obligations. First, an annual report, on forms furnished by the Association, must be filed with the Secretary; second, each society is expected to be represented at the annual meeting by at least one delegate;

and, third, dues are to be remitted for each member not exempt from payment of dues."

With this foreword, the revision proceeded.

1. *Revision of the Roll of County Societies*:

(a) County societies which have fulfilled all their constitutional obligations: Autauga, Baldwin, Barbour, Bibb, Blount, Bullock, Butler, Calhoun, Chambers, Cherokee, Chilton, Clay, Coffee, Colbert, Covington, Crenshaw, Cullman, Dale, Dallas, DeKalb, Elmore, Escambia, Etowah, Fayette, Franklin, Geneva, Hale, Henry, Houston, Jackson, Jefferson, Lawrence, Lee, Limestone, Macon, Madison, Marengo, Marion, Marshall, Mobile, Monroe, Montgomery, Morgan, Perry, Pike, Randolph, Shelby, Talladega, Tallapoosa, Tuscaloosa, Walker, Wilcox, Winston—Total 53.

(b) County societies partially delinquent: In that they are not represented by delegates at this meeting of the Association: Choctaw, Cleburne, Lamar, Lauderdale, Lowndes, Pickens, St. Clair, Sumter and Washington.—Total 9.

(c) County societies totally delinquent: Clarke, Conecuh, Coosa, Greene and Russell.—Total 5.

No objection being made as to the correctness of this report, the President directed the Secretary to write the Societies delinquent in report and dues and, failing to remove the delinquencies, to call the Societies to the attention of the State Board of Censors.

Whereupon the roll of County Medical Societies was declared closed until the next annual session of the Association.

The Secretary then said:

"In revising the Roll of Counsellors, five lists are prepared, designated respectively: (1) the schedule of delinquent counsellors—counsellors delinquent in attendance or dues, or against whom charges may be pending; (3) the schedule of miscellaneous counsellors—counsellors who have died since the last annual meeting, or have offered their resignation, or have moved out of the state, or out of their respective congressional districts; (4) the schedule of active counsellors of twenty years' standing; and (5) the schedule of counsellors-elect who have qualified as provided in the Constitution."

With such preface, the revision of the rolls was continued.

2. *Revision of the Roll of Counsellors*:

(a) Counsellors clear on the books: Abbott, Acker, Alison, Allgood, Anderson, Barber, Bell, Belue, Boyd, Bragg, Branch, Brown, Brunson, Cannon, Carraway, Carter, Chenault, Cloud, Cocke, Collier, Conwell, Craddock, Daves, Davis, Denison, Dodson, Donald, Eskew, Ford, Foshee, Garber, Gibson, Gipson, Godard, Golden, Granger, Gresham, Grote, Hill, R. C., Hill, R. Lee; Hodges, Howell, Isbell, Jackson, Jones, C. T., Jones, J. Paul, Kennedy, Killian, Killingsworth, Leatherwood, Lisenby, Martin, McCaslan, Meadows, Moore, C. W. C., Moore, D. S.; Morgan, J. O., Morgan, J. Ralph, Noland, Oswalt, Owings, Parker, Partlow, Perdue, Riggs, Riser, Roan, Salter, Scarbrough, Segrest, Sewell, Sherrill, Simpson, H. M., Simpson, John W.; Skinner, Smith, Stabler, Stallworth, Tankersley, Thacker, Tillman, Waters, Watson, Weil, Weldon, White, Whiteside, Wilson, Woodruff, Wright.

In the absence of objection, the President ordered passed the names of these counsellors reported as clear on the books:

(b) Delinquent Counsellors: None.

(c) Miscellaneous Counsellors:

(1) Life Counsellors who have died: Drs. M. S. Davie, J. D. Dowling, V. J. Gragg, N. G. James and D. F. Talley.

(2) Active Counsellors who have died: Drs. C. O. King, Stewart Welch and A. L. White.

(3) Active Counsellors who have moved: Drs. B. F. Austin, W. C. Hatchett and Merle E. Smith.

(4) Active Counsellors who have resigned: None.

(d) Active Counsellors of twenty years' standing: None.

(e) Counsellors-Elect who have properly qualified: Joseph M. Donald, Edgar G. Givhan, Jr., M. W. Samford and M. S. White.

The President directed that the names of the deceased counsellors be transferred to The Book of the Dead; that those who have moved from the districts from which they were elected be stricken from the Roll; and that to the Roll of Active Counsellors there be added Drs. Donald, Givhan, Samford and White.

Whereupon the President declared the Roll of the College of Counsellors closed until the next annual session of the Association.

3. *Revision of the Roll of Correspondents*:

Dr. Reginald Fitz, the 1947 Jerome Cochran Lecturer, was added to the Roll of Correspondents.

4. *Revision of the Roll of Officers*:

Dr. J. P. Chapman of Selma was elected President; Dr. E. L. Gibson of Enterprise, Vice-President of the Southeastern Division; Dr. J. O. Morgan of Gadsden, a Censor to complete the term, to expire in 1950, of Dr. M. S. Davie, deceased; Dr. John W. Simpson of Birmingham, a Censor to complete the term, to expire in 1951, of Dr. M. Y. Dabney, resigned; and Dr. T. B. Hubbard of Montgomery to succeed himself as a Censor.

In the course of electing officers to fill vacancies in the Association and on the Board of Censors, when it was announced that the term of Dr. Partlow was expiring,

he asked the Chairman for the privileges of the floor to make a brief statement. He stated to the Association that, owing to pressure of other duties and responsibilities with the State institutions for the insane he would be unable to accept reelection to the State Board of Censors. He referred to the fact that the Association had given him every honor, including the presidency of the Association, election as orator for one annual meeting when that custom prevailed, delivery of the Jerome Cochran address, the generous gesture of the State Association in having his portrait painted for the Medical School, election to the Board of Censors in 1918 with reelections for continuing him on the Board until the present time, a period of 29 years, except 1935 and 1936 when he was off the Board by resignation, served from 1930 to 1934 as Chairman of the Board of Censors, succeeding the lamented S. W. Welch in that position, which chairmanship he also resigned.

He expressed a feeling of deep appreciation to the Association for these honors and expressed the hope that he would not be considered presumptuous in requesting the Association not to reelect him to the Board of Censors but to vote for someone else to succeed him. He expressed continued interest in the affairs of the Association and the operation of the Health Department with a feeling of friendship and harmony with the personnel of the Board and the Health Department.

As a token of its high regard for him, the Association accorded Dr. Partlow a rising vote of thanks.

Whereupon, the election proceeded, with the result that Dr. Chas. E. Abbott of Tuscaloosa was elected a Censor for five years.

Committees constitutionally proceeded to nominate Counsellors brought in the following nominations, and the nominees were elected by the Association: 1st District—J. D. Perdue and W. S. Chapman; 2nd—John A. Martin, L. D. Parker and D. G. Gill; 3rd—E. L. Gibson and W. H. McCaslan; 4th—J. F. Sewell and G. G. Woodruff; 5th—A. L. Isbell and J. O. Finney; 6th—T. J. Anderson and J. P. Collier; 7th—W. A. Gresham, A. C. Jackson and B. W. McNease; 8th—H. A. Darby and W. G. McCown; and 9th—W. A. Clyde and Oliver W. Welch.

Miscellaneous Business

The following proposed constitutional amendments were introduced by Drs. J. F. Alison and Joe H. Little, to lie over until the 1948 meeting of the Association:

TO AMEND SEC. 2 OF ART. VIII

The president shall be elected for one year; the vice-presidents, for four years, in such a way that one vacancy only will occur annually by expiration of official term; the secretary for five years; the treasurer, for five years; the censors for five years, not to succeed themselves, in such a way that two vacancies will occur annually by expiration of official term.

TO AMEND SEC. 4 OF ART. VIII

Officers shall be elected by ballot with nomination from the floor. A majority of all votes cast shall be necessary for election. Every officer shall continue in office until his successor is duly elected and installed.

It was proposed, also, by Drs. Alison and Little that Sec. 4 of the Ordinance of the Association entitled Sessions of the Association, and Order of Business Therein be amended to read as follows:

Sec. 4. That the last day of the session shall be devoted to the transaction of the business of the Association, the report of the Board of Censors, a copy of which shall be furnished the delegates and Counsellors at the meeting; the revision of the rolls and the election of officers.

The Association gave unanimous endorsement to the following expression of gratitude proposed by Dr. Cannon for courtesies extended the Association during its 1947 session:

The Association's indebtedness to the members of the Jefferson County Medical Society for their courtesies during the course of this annual session is in an amount that is incalculable, surpassing even their kindnesses on the occasion of the 1946 meeting. Thanks are due each member of the Society but the Association is under particular obligation to the committees that have functioned so efficiently throughout the entire session under the chairmanship of the General Chairman, Dr. Gilbert Douglas. Gratitude is expressed, also, for the courtesies of the Thomas Jefferson Hotel, the Birmingham Chamber of Commerce, the Southern Medical Association, the radio stations and the press.

It is moved that this expression of gratitude be adopted by the Association.

The Association was invited to meet in Mobile in 1948, and the invitation was accepted.

President Chapman and the other newly chosen officers were presented, whereupon the Association was declared adjourned.

THE ROLL OF COUNSELLORS

REVISION OF 1947

LIFE COUNSELLORS

Name and Address	Date of Election
Acker, Paul Jerome Morris, Mobile (1)	1923
Alison, Samuel Blakemore, Minter (4)	1919
Ashcraft, Virgil Lee, Reform (7)	1919
Bedsole, James G., Jackson (1)	1922
Bondurant, Eugene DuBose, Mobile (1)	1894
Burdeshaw, Shelby L., Headland (3)	1921
Caldwell, Edwin Valdivia, Huntsville (8)	1918
Chenault, Frank L., Decatur (8)	1917
Dabney, Marye Y., Birmingham (9)	1923
Faulk, William M., Tuscaloosa (6)	1913
Gordon, Samuel A., Marion (6)	1913
Gresham, George L., Speigner (4)	1913
Guice, Charles Lee, Gadsden (5)	1899
Harris, Seale, Birmingham (9)	1903
Harrison, William Groce, Birmingham (9)	1896
Hayes, Charles Philips, Elba (3)	1920
Hayes, Julius Pope, Clanton (6)	1920
Heacock, Jos. D., Birmingham (9)	1912
Heflin, Wyatt, Birmingham (9)	1893
Hill, Robert L., Winfield (7)	1924
Hill, Robert Somerville, Montgomery (2)	1898
Howell, William Edward, Haleyville (7)	1918
Howle, James Augustus, Hartselle (8)	1895
Hubbard, T. Brannon, Montgomery (2)	1924
Jackson, Alva A., Florence (8)	1918
Leach, Sydney, Tuscaloosa (6)	1920
Lester, Belford S., Birmingham (9)	1923
Lightfoot, Phillip Malcolm, Shorter (3)	1918
Lull, Cabot, Birmingham (9)	1919
Lupton, Frank A., Birmingham (9)	1913
Martin, James Cordie, Cullman (7)	1917
Mason, James Monroe, Birmingham (9)	1918
Mayer, Kossuth Aaron, Lower Peach Tree (1)	1919
McAdory, Edward Dudley, Cullman (7)	1920
McCain, William Jasper, Livingston (6)	1898
McCall, Daniel T., Mobile (1)	1923
McLeod, John Calvin, Bay Minette (2)	1911
McLester, James Somerville, Birmingham (9)	1913
Mohr, Chas. A., Mobile (1)	1909
Partlow, William Dempsey, Tuscaloosa (6)	1909
Ralls, Arthur W., Gadsden (5)	1919
Redden, Raymond Hollis, Sulligent (7)	1926
Rucker, Edmon W., Birmingham (9)	1922
Sankey, Howard J., Nauvoo (7)	1914
Scott, Walter F., Birmingham (9)	1922
Searcy, Harvey Brown, Tuscaloosa (6)	1923
Shropshire, Courtney W., Birmingham (9)	1923
Sledge, Edward S., Mobile (1)	1922
Speir, Phillip V., Greenville (2)	1917
Taylor, Woodie R., Town Creek (8)	1926
Thigpen, Charles Alston, Montgomery (2)	1900
Thomas, Eugene Marvin, Prattville (4)	1920
Waldrop, R. W., Bessemer (9)	1922
Walker, Alfred A., Birmingham (9)	1923
Walls, J. J., Alexander City (5)	1924
Ward, Henry Silas, Birmingham (9)	1915
Wilkinson, David Leonidas, Birmingham (9)	1902

Total 57

ACTIVE COUNSELLORS

Those marked with a † are serving last terms of six years.

Those marked with an asterisk (*) are serving second terms of seven years.

Those without a symbol are serving first terms of seven years.

The numeral is the number of the congressional district.

	Date of Election	Expiration
Abbott, Chas. E., Tuscaloosa (6)	*1945	to 1952
Acker, Charles T., Montevallo (6)	*1944	to 1951
Alison, James F., Selma (4)	*1941	to 1948
Allgood, Homer W., Fairfield (9)	1944	to 1951
Anderson, Thos. J., Greensboro (6)	†1947	to 1953
Barber, William J., Butler (1)	1942	to 1949
Bell, J. Mac, Mobile (1)	1943	to 1950
Belue, Julius O., Athens (8)	*1944	to 1951
Boyd, Frank H., Opelika (3)	*1946	to 1953
Bragg, John C., Decatur (8)	1941	to 1948
Branch, John L., Montgomery (2)	1944	to 1951
Brown, Elridge T., Cleveland (7)	*1944	to 1951
Brunson, Emmett T., Samson (3)	*1943	to 1950
Cannon, Douglas L., Montgomery (2)	†1942	to 1948
Carraway, Chas. Newton, Birmingham (9)	1942	to 1949
Carter, William R., Repton (2)	*1941	to 1948
Chenault, Erskine M., Decatur (8)	*1942	to 1949
Cloud, Robert E., Ensley (9)	1941	to 1948
Cocke, William T., Demopolis (1)	*1946	to 1953
Collier, James P., Tuscaloosa (6)	*1947	to 1954
Conwell, H. Earle, Birmingham (9)	1942	to 1949
Craddock, French H., Sylacauga (4)	†1946	to 1952
Daves, James G., Cullman (7)	*1945	to 1952
Davis, Lewis C., Gordo (7)	*1946	to 1953
Denison, George A., Birmingham (9)	1943	to 1950
Dodson, Robert B., Cullman (7)	1944	to 1951
Donald, Dan C., Birmingham (9)	1944	to 1951
Donald, Joseph M., Birmingham (9)	1946	to 1953
Eskew, M. H., Uniontown (6)	*1941	to 1948
Ford, Charles E., Roanoke (5)	*1946	to 1953
Foshee, Reuben A., Alexander City, Rt. 5 (5)	1944	to 1951
Garber, James R., Birmingham (9)	†1946	to 1952
Gibson, Edward Lee, Enterprise (3)	*1947	to 1954
Gipson, Amos C., Gadsden (5)	1944	to 1951
Givhan, Edgar G., Jr., Birmingham (9)	1946	to 1953
Godard, Claud G., Fairhope (2)	1942	to 1949
Golden, William C., Clanton (6)	1944	to 1951
Granger, F. G., Ashford (3)	†1942	to 1948
Gresham, Walter A., Russellville (7)	†1947	to 1953
Grote, Carl A., Huntsville (8)	*1944	to 1951
Hill, Robert C., York (6)	*1943	to 1950
Hill, R. Lee, Haleyville (7)	*1946	to 1953
Hodges, Rayford, Scottsboro (8)	*1942	to 1949
Howell, John V., Marion (6)	*1943	to 1950
Isbell, Arthur L., Albertville (5)	*1947	to 1954
Jackson, Albert C., Jasper (7)	*1947	to 1954
Jones, Carl T., Newville (3)	1941	to 1948
Jones, J. Paul, Camden (1)	1943	to 1950
Kennedy, Hughes, Jr., Birmingham (9)	1943	to 1950
Killingsworth, Noah W., Brundidge (2)	*1946	to 1953
Leatherwood, Elbert F., Hayneville (2)	1944	to 1951
Lisenby, J. Otis, Atmore (2)	1943	to 1950
Martin, John A., Montgomery (2)	†1947	to 1953
McCaslan, W. Hill, Union Springs (3)	*1947	to 1954
Meadows, James A., Birmingham (9)	1943	to 1950
Moore, C. W. C., Talladega (4)	*1944	to 1951
Moore, David S., Jr., Birmingham (9)*	†1946	to 1952
Morgan, J. Orville, Gadsden (5)	*1946	to 1953
Morgan, J. Ralph, Birmingham (9)	1943	to 1950
Noland, Lloyd, Fairfield (9)	†1943	to 1949
Oswalt, G. G., Mobile (1)	†1943	to 1949
Owings, W. J. B., Brent (6)	1941	to 1948
Parker, Lorenzo D., Andalusia (2)	†1947	to 1953
Partlow, Rufus C., Tuscaloosa (6)	1943	to 1950
Perdue, James D., Mobile (1)	†1947	to 1953
Riggs, Frank W., Montgomery (3)	1943	to 1950
Riser, William H., Lafayette (5)	*1942	to 1949
Roan, Avery M., Decatur (8)	1941	to 1948
Salter, Wilbur M., Anniston (4)	*1941	to 1948
Samford, Millard W., Opelika (3)	1946	to 1953
Scarbrough, B. C., Albertville (5)	*1942	to 1949
Segrest, Grady O., Mobile (1)	1942	to 1949

*Deceased

ACTIVE COUNSELLORS—Continued

	Date of Election	Expiration
Sewell, John Ferris, Wetumpka (4)	*1947	to 1954
Sherrill, John D., Birmingham (9)	*1946	to 1953
Simpson, Harry M., Florence (8)	*1945	to 1952
Simpson, John W., Birmingham (9)	1942	to 1949
Skinner, Marcus, Selma (4)	*1946	to 1953
Smith, Gordon R., Ozark (3)	*1941	to 1948
Stabler, Lorenzo V., Greenville (2)	*1944	to 1951
Stallworth, William A., Frisco City (1)	*1944	to 1951
Tankersley, James, Prattville (4)	†1942	to 1948
Thacker, Vincent J., Dothan (3)	*1942	to 1949
Tillman, John S., Clio (3)	*1942	to 1949
Waters, Hinton W., Opp (2)	*1946	to 1953
Watson, Jerre, Anniston (4)	*1945	to 1952
Weil, Clarence K., Montgomery (2)	*1944	to 1951
Weldon, Joseph M., Mobile (1)	*1942	to 1949
White, Marvin S., Hamilton (7)	1946	to 1953
Whiteside, Maurice S., Cullman (7)	1941	to 1948
Wilson, Frank C., Birmingham (9)	1942	to 1949
Woodruff, Gerald G., Anniston (4)	*1947	to 1954
Wright, David H., Berry (7)	†1946	to 1952

Total 92

COUNSELLORS-ELECT

Chapman, Will S., Jackson (1)	1947	to 1954
Clyde, Wallace A., Birmingham (9)	1947	to 1954
Darby, Henry A., Athens (8)	1947	to 1954
Finney, James O., Gadsden (5)	1947	to 1954
Gill, Daniel G., Montgomery (2)	1947	to 1954
McCown, William G., Huntsville (8)	1947	to 1954
McNease, Benjamin W., Fayette (7)	1947	to 1954
Welch, Oliver W., Fairfield (9)	1947	to 1954

THE ROLL OF THE COLLEGE OF COUNSELLORS BY CONGRESSIONAL DISTRICTS

On this roll the names of the Counsellors are given by Congressional Districts. It is intended to serve as a guide in the election of new Counsellors, with a view to the distribution of them in approximate proportion to the number of members in the several districts. It is not considered to be good policy, and it is not considered to be fair and right, to give a few large towns greatly more than their pro rata share of Counsellors. The calculations are based on the nearest whole number. On April 1, 1947, there were 1,629 members in the County Medical Societies. That would give one Counsellor to every 16 members. The membership set forth in the following is that of April 1.

FIRST DISTRICT

Names of Counsellors—W. T. Cocke, Marengo; W. J. Barber, Choctaw; W. S. Chapman, Clarke; G. G. Oswalt, G. O. Segrest, J. M. Weldon, J. D. Pedue and J. Mac Bell, Mobile; W. A. Stallworth, Monroe; J. Paul Jones, Wilcox.

County	*Members*	*Counsellors*
Choctaw	8	1
Clarke	14	1
Marengo	12	1
Mobile	139	5
Monroe	10	1
Washington	2	0
Wilcox	10	1
	195	10

SECOND DISTRICT

Names of Counsellors—C. G. Godard, Baldwin; L. V. Stabler, Butler; W. R. Carter, Conecuh; L. D. Parker and H. W. Waters, Covington; J. O. Lisenby, Escambia; E. F. Leatherwood, Lowndes; J. L. Branch, F. W. Riggs, J. A. Martin, C. K. Weil, Douglas L. Cannon and D. G. Gill, Montgomery; and N. W. Killingsworth, Pike.

County	*Members*	*Counsellors*
Baldwin	18	1
Butler	12	1
Conecuh	7	1
Covington	22	2
Crenshaw	9	0
Escambia	11	1
Lowndes	3	1
Montgomery	113	6
Pike	14	1
	209	14

THIRD DISTRICT

Names of Counsellors—J. S. Tillman, Barbour; W. H. McCaslan, Bullock; E. L. Gibson, Coffee; G. R. Smith, Dale; E. T. Brunson, Geneva; C. T. Jones, Henry; V. J. Thacker and F. G. Granger, Houston; F. H. Boyd and M. W. Samford, Lee.

County	*Members*	*Counsellors*
Barbour	16	1
Bullock	5	1
Coffee	13	1
Dale	8	1
Geneva	12	1
Henry	8	1
Houston	26	2
Lee	21	2
Macon	7	0
Russell	3	0
	119	10

FOURTH DISTRICT

Names of Counsellors—James Tankersley, Autauga; W. M. Salter, Jerre Watson and G. G. Woodruff, Calhoun; J. F. Alison and Marcus Skinner, Dallas; J. F. Sewell, Elmore; and French Craddock and C. W. C. Moore, Talladega.

County	*Members*	*Counsellors*
Autauga	7	1
Calhoun	37	3
Clay	9	0
Coosa	2	0
Dallas	37	2
Elmore	11	1
St. Clair	8	0
Talladega	28	2
	139	9

FIFTH DISTRICT

Names of Counsellors—W. H. Riser, Chambers; A. C. Gipson, J. O. Finney and J. O. Morgan, Etowah; A. L. Isbell and B. C. Scarbrough, Marshall; C. E. Ford, Randolph; and R. A. Foshee, Tallapoosa.

County	*Members*	*Counsellors*
Chambers	17	1
Cherokee	3	0
Cleburne	4	0
DeKalb	14	0
Etowah	60	3
Marshall	17	2
Randolph	10	1
Tallapoosa	17	1
	142	8

SIXTH DISTRICT

Names of Counsellors—W. J. B. Owings, Bibb; W. C. Golden, Chilton; T. J. Anderson, Hale; M. H. Eskew and J. V. Howell, Perry; C. T. Acker, Shelby; R. C. Hill, Sumter; and J. P. Collier, R. C. Partlow and C. E. Abbott, Tuscaloosa.

County	*Members*	*Counsellors*
Bibb	10	1
Chilton	11	1
Greene	6	0
Hale	6	1
Perry	8	2
Shelby	15	1
Sumter	15	1
Tuscaloosa	52	3
	123	10

SEVENTH DISTRICT

Names of Counsellors—E. T. Brown, Blount; R. B. Dodson, J. G. Daves and M. S. Whiteside, Cullman; B. W. McNease and D. H. Wright, Fayette; W. A. Gresham, Franklin; M. S. White, Marion; L. C. Davis, Pickens; A. C. Jackson, Walker; and R. Lee Hill, Winston.

County	*Members*	*Counsellors*
Blount	11	1
Cullman	19	3
Fayette	10	2
Franklin	15	1
Lamar	10	0
Marion	9	1
Pickens	11	1
Walker	25	1
Winston	9	1
	119	11

EIGHTH DISTRICT

Names of Counsellors—Rayford Hodges, Jackson; H. M. Simpson, Lauderdale; H. A. Darby and J. O. Belue, Limestone; W. G. McCown and C. A. Grote, Madison; and E. M. Chenault, J. C. Bragg and A. M. Roan, Morgan.

County	*Members*	*Counsellors*
Colbert	16	0
Jackson	10	1
Lauderdale	27	1
Lawrence	7	0
Limestone	14	2
Madison	33	2
Morgan	25	3
	132	9

NINTH DISTRICT

Names of Counsellors—J. D. Sherrill, Lloyd Noland, J. R. Garber, D. S. Moore, Jr.,* R. E. Cloud, C. N. Carraway, H. Earle Conwell, J. W. Simpson, F. C. Wilson, G. A. Denison, Hughes Kennedy, Jr., J. A. Meadows, Ralph Morgan, D. C. Donald, Joe M. Donald, E. G. Givhan, Jr., H. W. Allgood, W. A. Clyde and O. W. Welch.

County	*Members*	*Counsellors*
Jefferson	467	19

THE ROLL OF CORRESPONDENTS

"Distinguished members of the medical profession residing outside of the State, and Counsellors of the Association, who after not less than ten years of faithful service may have resigned their counsellorships, shall be eligible for election as Correspondents.

"Correspondents shall have the privilege of transmitting or presenting to the Association such communications, or scientific essays, as they may deem proper."—*From the Constitution.*

Name and Address	*Date of Election*
Andrew J. Coley, Oklahoma City	1909
W. S. Thayer, Baltimore	1921
Lewellys F. Barker, Baltimore	1921
Rudolph Matas, New Orleans	1921
John B. Elliott, Jr., New Orleans	1921
Henry A. Christian, Boston	1921
H. A. Royster, Raleigh, N. C.	1926
Stewart Roberts, Atlanta	1927
G. Canby Robinson, Baltimore	1928
Louis B. Wilson, Rochester, Minn.	1930
A. Benson Cannon, New York	1932
J. Shelton Horsley, Richmond	1933
Russell L. Cecil, New York	1934
George H. Semken, New York	1935
Frank H. Lahey, Boston	1937
T. M. McMillan, Philadelphia	1938
George T. Pack, New York	1939
E. V. McCollum, Baltimore	1940
Harvey B. Stone, Baltimore	1942
Albert C. Furstenberg, Ann Arbor	1943
Tinsley R. Harrison, Dallas, Texas	1944
Alton Ochsner, New Orleans	1946
Reginald, Fitz, Boston	1947

SCHEDULE OF THE ANNUAL SESSIONS AND PRESIDENTS SINCE THE REORGANIZATION IN 1868

Place and President	*Year*
Selma—Albert Galatin Mabry	1868
Mobile—Albert Galatin Mabry	1869
Montgomery—Richard Frazer Michel	1870
Mobile—Francis Armstrong Ross	1871
Huntsville—Thomas Childress Osborne	1872
Tuscaloosa—George Ernest Kumpe	1873
Selma—George Augustus Ketchum	1874
Montgomery—Job Sobieski Weatherly	1875
Mobile—John Jefferson Dement	1876
Birmingham—Edward Davies McDaniel	1877
Eufaula—Peter Bryce	1878
Selma—Robert Dickens Webb	1879
Huntsville—Edmond Pendleton Gaines	1880
Montgomery—William Henry Anderson	1881

*Deceased

Place and President	*Year*
Mobile—John Brown Gaston	1882
Birmingham—Clifford Daniel Parke	1883
Selma—Mortimer Harvey Jordan	1884
Greenville—Benjamin Hogan Riggs	1885
Anniston—Francis Marion Peterson	1886
Tuscaloosa—Samuel Dibble Seelye	1887
Montgomery—Edward Henry Sholl	1888
Mobile—Milton Columbus Baldridge	1889
Birmingham—Charles Higgs Franklin	1890
Huntsville—William Henry Sanders	1891
Montgomery—Benjamin James Baldwin	1892
Selma—James Thomas Searcy	1893
Birmingham—Thaddeus Lindley Robertson	1894
Mobile—Richard Matthew Fletcher	1895
Montgomery—William Henry Johnston	1896
Selma—Barckley Wallace Toole	1897
Birmingham—Luther Leonidas Hill	1898
Mobile—Henry Altamont Moody	1899
Montgomery—John Clarke LeGrande	1900
Selma—Russell McWhorter Cunningham	1901
Birmingham—Edwin Lesley Marechal	1902
Talladega—Glenn Andrews	1903
Mobile—Matthew Bunyan Cameron	1904
Montgomery—Capers Capehart Jones	1905
Birmingham—Eugene DuBose Bondurant	1906
Mobile—George Tighlman McWhorter	1907
Montgomery—Samuel Wallace Welch	1908
Birmingham—Benjamin Leon Wyman	1909
Mobile—Wooten Moore Wilkerson	1910
Montgomery—Wyatt Heflin Blake	1911
Birmingham—Lewis Coleman Morris	1912
Mobile—Harry Tutwiler Inge	1913
Montgomery—Robert S. Hill	1914
Birmingham—Benjamin Britt Simms	1915
Mobile—James Norment Baker	1916
Montgomery—Henry Green	1917
Birmingham—William Dempsey Partlow	1918
Mobile—Isaac LaFayette Watkins	1919
Anniston—James Somerville McLester	1920
Montgomery—Louis William Johnston	1921
Birmingham—Dyer F. Talley	1922
Mobile—Walter S. Britt	1923
Montgomery—W. W. Harper	1924
Birmingham—J. D. Heacock	1925
Mobile—C. A. Mohr	1926
Montgomery—A. L. Harlan	1927
Birmingham—John D. S. Davis	1928
Mobile—E. V. Caldwell	1929
Montgomery—L. E. Broughton	1930
Birmingham—W. G. Harrison	1931
Mobile—Toulmin Gaines	1932
Montgomery—Samuel Kirkpatrick	1933
Birmingham—James R. Garber	1934
Mobile—William M. Cunningham	1935
Montgomery—Charles A. Thigpen	1936
Birmingham—Lloyd Noland	1937
Mobile—E. S. Sledge	1938
Montgomery—Seale Harris, Sr.	1939
Birmingham—M. S. Davie	1940
Mobile—Samuel A. Gordon	1941
Montgomery—James M. Mason	1942
Birmingham—Harvey B. Searcy	1943
Montgomery—Fred W. Wilkerson	1944
Meeting Cancelled—Walter F. Scott	1945
Birmingham—Walter F. Scott	1946
Birmingham—Carl A. Grote	1947

SECRETARIES OF THE ASSOCIATION

1852-1854	George A. Ketchum
1854-1855	R. Miller
1869-1873	Jerome Cochran
1874-1878	B. H. Riggs
1879-1892	T. A. Means
1893-1897	J. R. Jordan
1897-1904	G. P. Waller
1904-1906	L. C. Morris
1906-1915	J. N. Baker
1915-1923	H. G. Perry
1923-1924	Douglas L. Cannon
1924-1930	B. B. Simms
1930-1940	Douglas L. Cannon

TREASURERS OF THE ASSOCIATION

1854-1855	W. P. Reese
1869-1898	W. C. Jackson
1898-1915	H. G. Perry
1915-1939	J. U. Ray

SECRETARY-TREASURERS OF THE ASSOCIATION

1940-	Douglas L. Cannon

SCHEDULE OF JEROME COCHRAN LECTURERS

1899—J. T. Searcy, Tuscaloosa—What Is Insanity?

1900—Wm. Osler, Baltimore—Not present.

1901—Wm. Osler, Baltimore—Not present.

1902—Nathan Bozeman, New York—Declined.

1903—George H. Price, Nashville—The History of Medicine.

1904—W. S. Thayer, Baltimore—Cardiac and Vascular Complications of Typhoid Fever.

1905—Robert Abbe, New York—The Problems of Surgery.

1906—Joseph Collins, Boston—Arteriosclerosis.

1907—Nicholas Senn, Chicago—Final Triumph of Scientific Medicine.

1908—E. L. Marechal, Mobile—Absent.

1909—Lewellys F. Barker, Baltimore—Clinical Methods of Cardiac Investigation.

1910—Frank S. Meara, New York—Some Problems of Nutrition in Early Life.

1911—Rudolph Matas, New Orleans—Inflammatory Tuberculosis.

1912—Maurice H. Richardson, Boston—Elimination of Preventable Disasters from Surgery.

1913—L. L. Hill, Montgomery—Surgical Complications and Sequelae of Typhoid Fever.

1914—Frank Smithies, Chicago—Contributions of the Twentieth Century to the Better Understanding of Gastric Cancer.

1915—John B. Elliott, Jr., New Orleans—Abscess of Liver.

1916—Howard A. Kelly, Baltimore—Radium Therapy.

1917—Wm. J. Mayo, Rochester—Importance of Septic Infection in the Three Great Plagues.

1918—George E. Bushnell, Washington—The Army in Relation to the Tuberculosis Problem.

1919—George W. Crile, Cleveland, Ohio—Abdominal Surgery in Civil and Military Hospitals.

1920—Henry A. Christian, Boston—Bright's Disease With Special Reference to Its Treatment.

1921—J. Whitridge Williams, Baltimore—A Critical Review of Twenty-One Years' Experience with Caesarean Section.

1922—Chas. H. Mayo, Rochester, Minn.—The Thyroid and Its Diseases.

1923—Jas. S. McLester, Birmingham—Nutrition in Its Newer Aspects.

1924—James S. Stone, Boston—Abdominal Diagnoses in Children.

1925—H. A. Royster, Raleigh—The Surgeon's Heritage and Outlook.

1926—Stewart Roberts, Atlanta—The Heart Muscle.

1927—G. Canby Robinson, Baltimore—The Mechanism of Heart Failure and Its Correction.

1928—John B. Deaver, Philadelphia—Chronic Pancreatitis.

1929—Louis B. Wilson, Rochester, Minn.—Some Suggestions for Improved Training of Medical Specialists.

1930—Walter E. Sistrunk, Dallas, Texas—The Part That Surgical Anesthesia Has Played in Medical Science.

1931—R. S. Cunningham, Nashville, Tenn.—Studies on the Pathology of Tuberculosis and Syphilis.

1932—A. Benson Cannon, New York—Practical Points on the Diagnosis and Treatment of the so-called Lymphoblastoma Group of Diseases.

1933—J. Shelton Horsley, Richmond—Cancer of the Stomach and Colon.

1934—Russell L. Cecil, New York—Present Trends in the Study of Rheumatic Fever and Rheumatoid Arthritis.

1935—George H. Semken, New York—A Consideration of Tumors of the Breast.

1936—William D. Partlow, Tuscaloosa—A Debt the World Owes Medical Science.

1937—Frank H. Lahey, Boston—Carcinoma of the Colon and Rectum.

1938—T. M. McMillan, Philadelphia—An Optimistic View of Some of the Problems of Heart Disease.

1939—George T. Pack, New York—Recent Advances in the Radiation Therapy of Cancer.

1940—E. V. McCollum, Baltimore—Some Contributions of Nutritional Research to Clinical Medicine.

1941—M. Y. Dabney, Birmingham—The Story of Breast Cancer.

1942—Harvey B. Stone, Baltimore—Biliary Diseases as Seen by a Surgeon.

1943—A. C. Furstenberg, Ann Arbor—Objectives in Medical Education.

1944—Tinsley R. Harrison, Dallas, Texas—The Value and Limitations of Laboratory Tests in the Practice of Medicine.

1945—Meeting Cancelled.

1946—Alton Ochsner, New Orleans—The Influence of Serendipity on Medicine.

1947—Reginald Fitz, Boston—The Early Characteristics of Certain Chronic Diseases.

OFFICERS OF THE ASSOCIATION

PRESIDENT

J. P. Chapman (1948) ..... Selma

VICE-PRESIDENTS

Frank Jordan (1948)* ..... Huntsville
B. W. McNease (1948) ..... Fayette
J. Paul Jones (1949) ..... Camden
E. L. Gibson (1951) ..... Enterprise

SECRETARY-TREASURER

Douglas L. Cannon (1950) ..... Montgomery

THE STATE BOARD OF CENSORS

E. V. Caldwell, Chm. (1950) ..... Huntsville
J. O. Morgan (1950) ..... Gadsden
French Craddock (1948) ..... Sylacauga
John L. Branch (1948) ..... Montgomery
Lloyd Noland (1949) ..... Fairfield
J. D. Perdue (1949) ..... Mobile
John W. Simpson (1951) ..... Birmingham
K. A. Mayer (1951) ..... Lower Peach Tree
T. B. Hubbard (1952) ..... Montgomery
C. E. Abbott (1952) ..... Tuscaloosa

STATE HEALTH OFFICER

D. G. Gill (1952) ..... Montgomery

DELEGATES AND ALTERNATES TO THE AMERICAN MEDICAL ASSOCIATION

Delegate—A. A. Walker ..... Birmingham
Alternate—G. O. Segrest ..... Mobile
(Terms expire with the 1948 session of the American Medical Association)

Delegate—Lloyd Noland ..... Fairfield
Alternate—D. G. Gill ..... Montgomery
(Terms expire with the 1949 session of the American Medical Association)

COMMITTEE ON MEDICAL CARE AND PUBLIC RELATIONS

C. A. Grote, Chairman ..... Huntsville
E. G. Givhan, Jr. ..... Birmingham
E. M. Chenault ..... Decatur
F. W. Riggs ..... Montgomery
E. S. Sledge ..... Mobile
Arthur Mazyck ..... Dothan
Frank Jordan ..... Huntsville
B. W. McNease ..... Fayette
J. Paul Jones ..... Camden
E. L. Gibson ..... Enterprise
J. P. Chapman ..... Selma
Douglas L. Cannon ..... Montgomery

COMMITTEE ON MENTAL HYGIENE

C. M. Rudulph, Chairman, Birmingham 1948
E. S. Sledge, Mobile 1949
Frank A. Kay, Birmingham 1950

COMMITTEE ON MATERNAL AND INFANT WELFARE

T. M.Boulware, Chairman, Birmingham 1948
Hughes Kennedy, Jr., Birmingham 1949
A. E. Thomas, Montgomery 1950

*Named by the President to serve until 1948 because of the election to the Board of Censors of the incumbent, Dr. J. O. Morgan, whose term would have expired in 1950.

COMMITTEE ON CANCER CONTROL

K. F. Kesmodel, Chairman, Birmingham 1948
F. H. Craddock, Jr., Sylacauga 1949
John Day Peake, Mobile 1950
John L. Branch, Montgomery 1951
J. P. Chapman, Selma 1952

COMMITTEE ON PREVENTION OF BLINDNESS AND DEAFNESS

Lucien Brown, Chairman, Gadsden 1948
W. B. Hardy, Birmingham 1949
Karl Benkwith, Montgomery 1950

COMMITTEE ON POSTGRADUATE STUDY

Ralph McBurney, Chairman, Birmingham 1948
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REGISTRATION AT THE SEVENTY-NINTH ANNUAL SESSION, BIRMINGHAM, APRIL 14-16, 1947

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Morgan, J. R., Birmingham
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Simpson, J. W., Birmingham
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Stallworth, W. A., Frisco City
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Tillman, J. S., Clio
Waters, H. W., Opp
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Wilson, F. C., Birmingham
Woodruff, G. G., Anniston
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Jackson: M. H. Lynch, Scottsboro
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Macon: H. S. Holloway, Notasulga
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Marengo: C. E. Kimbrough, Linden
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Perry: A. F. Wilkerson, Marion
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Randolph: A. J. Gay, Roanoke
Shelby: K. N. Gould, Wilsonville; J. A. Hines, Siluria
Talladega: D. P. Dixon, Talladega
Tallapoosa: H. E. Askin, Alexander City; L. H. Hamner, Camp Hill
Tuscaloosa: J. H. Goode, Tuscaloosa; Weldon Ray, Tuscaloosa
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Wilcox: J. A. Thompson, Pine Apple
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Andrews, N. L., Birmingham
Atwood, A. L., Birmingham

B

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Barelare, Bruno, Birmingham
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Barron, J. M., Fairfield
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Batson, W. P., Fairfield
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Bennett, T. L., Florence
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Blank, W. H., Birmingham
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Boozer, T. S., Montgomery
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Burleson, R. J., Decatur
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C

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Cothran, R. M., Birmingham

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Cunningham, W. A., Birmingham

D

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Davis, C. A., Mobile
Dawson, L. M., Birmingham
Deaver, C. W., Birmingham
Deaver, W. T., Adamsville
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Donald, W. J., Tuscaloosa
Douglas, G. F., Birmingham
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Ellis, J. T., Dothan

F

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Fisher, G. E., Birmingham
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Freeman, A. M., Birmingham

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Green, R. C., Birmingham
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Guthrie, R. F., Birmingham
Gwin, P. E., Sumiton

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Harris, Esau A., Bessemer
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Harris, H. A., Birmingham
Harris, R. R., Birmingham
Haun, C. A., Ensley
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Hirsh, J. E., Birmingham
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Hubbard, L. H., Montevallo
Hughes, V. P., Cullman

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Issos, D. N., Birmingham

J

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Jones, W. N., Birmingham
Jordan, J. S., Birmingham
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Jordan, W. M., Birmingham

K

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Kimbrough, R. M., Birmingham
Kinkead, K. J., Birmingham
Kirby, L. E., Birmingham
Kracke, R. R., Birmingham

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Lester, R. P., Mobile
Levi, I. P., Anniston
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Lineberry, E. D., Birmingham
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Littlejohn, W. S., Birmingham
Locke, W. W., Birmingham
Long, D. J., Montgomery
Love, J. T., Birmingham

M

MacIntyre, D. S., Birmingham
MacLennan, E. R., Opp
Magruder, T. V., Birmingham
Martin, W. A., Birmingham
Mason, J. M., III, Birmingham
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McGahey, T. P., Birmingham
McGehee, H. T., Birmingham
McKissack, W. M., Huntsville
McLester, J. B., Birmingham
McNeal, Alice M., Birmingham
McQuiddy, R. C., Birmingham
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Mertins, P. S., Montgomery
Meyer, B. S., Birmingham
Miles, N. E., Birmingham
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Miller, W. L., Gadsden
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Moody, Maxwell, Tuscaloosa
Morgan, P. A., Jr., Birmingham
Morland, H. C., Birmingham
Morris, H. B., Birmingham
Motley, J. P., Birmingham
Motley, S. D., Ensley

N

Nelson, W. B., Bay Minette
Newdorp, John, Montgomery
Newfield, S. U., Birmingham
Nickerson, Paul, Sylacauga
Norton, E. M., Birmingham
Nungester, G. H., Decatur

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Odom, C. W., Acmar
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Oliver, J. T., Tuscaloosa
Orton, A. E., Bessemer

P

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Prescott, W. E., Birmingham
Prescott, W. E., Jr., Birmingham
Pryor, R. B., Mulga

R

Ray, E. C., Birmingham
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Reagan,, Cas, Birmingham
Reque, P. G., Birmingham
Rike, H. C., Fairfield
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Russell, R. O., Birmingham

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Smith, R. J., Fairfield
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Stewart, Vera B., Birmingham
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Stone, J. J., Birmingham
Stuteville, Ethel, Birmingham
Sumner, I. C., Mobile

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Thomas, H. H., Birmingham
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Thuss, W. G., Birmingham
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Tucker, W. C., Dixiana
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Tyler, Ruby E., Tuscaloosa

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Underwood, S. S., Birmingham
Upchurch, Sam, Birmingham

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Van Sant, T. E., Piedmont

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Woodall, Paul, Birmingham
Word, Buford, Birmingham
Wright, D. O., Birmingham

Y

Young, A. C., Birmingham

Z

Zieman, S. A., Mobile

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Alberta Boggan, Birmingham
Mrs. Louise R. Cason, Birmingham
Mrs. Thelma M. Coburn, Birmingham
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Mildred R. Crowe, Birmingham
Katherine R. Dick, Birmingham
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Mrs. R. E. Johnson, Birmingham
Mrs. Howard Langston, Birmingham
Miss Mary L. Langston, Birmingham
Mrs. Ray Meade, Birmingham
Mrs. John T. Oliver, Tuscaloosa
Kathleen Sain, Montgomery
Mrs. I. C. Sumner, Mobile

Lorna W. Thigpen, Birmingham
J. G. Alexander, Atlanta, Ga.
Holland Anderson, Birmingham
S. L. Avner, Montgomery
John Barnes, Birmingham
A. D. Boutwell, Birmingham
J. G. Box, Birmingham
J. M. Broadhead, Birmingham
T. F. Brown, Richmond, Va.
J. L. Butler, Birmingham
Pat Caponza, Montgomery
E. B. Carmichael, Birmingham
C. E. Crossett, Birmingham
Walter D. Davis, Montgomery
Loyce Douglas, Birmingham
M. C. Downs, Birmingham
Larkin Edmondson, Montgomery
J. D. Faulk, Birmingham
J. O. Foley, Birmingham
J. R. Gladden, Birmingham
Don Goode, Birmingham
Gilbert Gray, Birmingham
Robert L. Green, Jr., Birmingham
F. W. Hamilton, Birmingham
H. Hardman, Birmingham
J. V. Henderson, Birmingham
Ray G. Hicks, Birmingham
F. D. Howard, Memphis, Tenn.
G. J. Hulcher, Richmond, Va.
Richard Kay, Philadelphia, Pa.
Marion Kelber, Birmingham
C. C. Kemp, Jr., Birmingham
Paul Landrip, Evansville, Ind.
Howard Langston, Birmingham
W. F. Laubenthal, Mobile
O. D. Lester, Atlanta, Ga.
C. P. Loranz, Birmingham
Jerry Mabry, Birmingham
Robert McBurney, Birmingham
Mack McCollum, Montgomery
W. W. McLeod, Montgomery
Wyatt Meredith, Birmingham
Joe Money, Birmingham
J. J. Mooney, Birmingham
Robbins Nettles, Ocala, Fla
A. H. O'Neal, Birmingham
T. E. Powell, New Brunswick, N. J.
J. D. Robertson, Lowndesboro
L. V. Rockhill, Birmingham
F. E. Russey, Birmingham
V. L. Smith, Birmingham
W. T. Snoddy, Birmingham
J. M. Soyars, Birmingham
W. B. Sutley, Birmingham
Norman Thompson, Birmingham
J. H. Walker, Birmingham
P. H. Warren, Richmond, Va.
M. A. Webber, Birmingham
G. M. Wheeler, Birmingham
W. H. W. White, Evansville, Ind.
Lee Whorton, Gadsden
G. O. Wright, Birmingham
J. M. Young, Mobile

SUMMARY OF ANNUAL ATTENDANCE

Year	Life Counsellors	Active Counsellors	Delegates	Members	Visitors	Total	Place
1916	19	66	92	106	41	306	Mobile
1917	18	64	96	199	32	409	Montgomery
1918	27	63	80	257	44	471	Birmingham
1919	22	43	87	94	102	348	Mobile
1920	16	61	59	85	51	272	Anniston
1921	26	65	73	183	58	405	Montgomery
1922	26	72	76	314	68	556	Birmingham
1923	14	48	66	106	50	284	Mobile
1924	29	70	84	230	79	492	Montgomery
1925	27	78	97	328	113	643	Birmingham
1926	33	74	105	194	131	537	Mobile
1927	36	85	104	252	87	564	Montgomery
1928	33	77	108	507	106	831	Birmingham
1929	19	60	102	176	109	466	Mobile
1930	32	83	106	286	102	609	Montgomery
1931	26	80	116	410	158	790	Birmingham
1932	19	60	101	158	133	471	Mobile
1933	21	74	103	264	85	547	Montgomery
1934	26	75	97	404	53	655	Birmingham
1935	15	59	91	180	83	428	Mobile
1936	23	79	95	265	68	530	Montgomery
1937	25	80	96	396	81	678	Birmingham
1938	18	65	78	157	63	381	Mobile
1939	29	79	96	326	84	614	Montgomery
1940	29	77	105	401	229	841	Birmingham
1941	29	66	86	211	91	483	Mobile
1942	33	75	105	249	82	544	Montgomery
1943	31	71	83	321	127	633	Birmingham
1944	33	72	92	214	110	521	Montgomery
1945	Meeting Cancelled						
1946	38	81	87	330	127	663	Birmingham
1947	34	76	91	333	124	658	Birmingham

MEDICAL COLLEGE OF ALABAMA

CLINICOPATHOLOGICAL CONFERENCE*

Reported by
Roger D. Baker, M. D.
Professor of Pathology

Conducted by
James S. McLester, M. D.
Professor of Medicine

PRESENTATION OF CASE

Dr. A. B. Riser, Junior Resident in Medicine: A 58-year-old white housewife entered the hospital because of jaundice. She had been in good health until six weeks before admission when she noticed the gradual onset of a dull aching pain in the abdomen. The pain radiated to the right upper quadrant and to the region between the shoulder

*This case, reported here in abbreviated form, was presented at the Postgraduate Seminar of the Medical College of Alabama, February 27, 1947.

blades; and was accompanied by anorexia, nausea and vomiting. The attacks were intermittent and frequently were associated with fever, nausea and vomiting. Anorexia and constipation were prominent symptoms. Three weeks after the onset of pain the patient noticed that her skin and eyes were yellow. The stools were hard and clay-colored and the urine was brown. There was burning on urination, weakness, fatigability and loss of weight. The day before admission the pain, nausea and vomiting increased.

She had been unable to eat greasy foods for the past year because of indigestion. There had been no previous episodes of jaundice and no history of consumption of alcohol or toxic drugs. The family history was non-contributory. No other member of the family had been jaundiced.

Examination revealed a well-developed, obese, white female who did not appear to be acutely ill. The skin, sclerae and mucous membranes were deeply jaundiced. The liver was palpable 8 fingerbreadths below the costal margin on the right, and ½ fingerbreadth at the left side of the liver. The edge was slightly tender and irregular. The surface was firm but no nodules could be felt. There was no edema or ascites. The spleen could not be palpated. The temperature was 98.6°, the pulse 80 per minute, the respirations 20, and the blood pressure was 135 systolic and 90 diastolic.

The red blood cells numbered 3,420,000; and there were 10.5 grams of hemoglobin. The white blood cells numbered 4,750 with 47% lymphocytes, 42% neutrophils, 5% monocytes and 6% eosinophils. The icterus index was 80. There was a direct van den Bergh reaction, and also an indirect reaction of 3.0 mgm. Total protein 7.2 gms.; albumin 4.2, globulin 2.9, giving an albumin-globulin ratio of 1.4:1. Blood cholesterol was 960 mgm. Alkaline phosphatase 10.9 Bodansky units (3-5.5 normal). Prothrombin time 168 sec. (Control 42 sec.). Bromsulfalein test (5 mgm per kilo.); 100 per cent of dye retained. Cephalin flocculation test: 0-1-2-1. The urine was positive for bile and negative for urobilinogen. The stool was negative for occult blood. A culture of the stool was negative for pathogens. Cysts of *Endamoeba coli* were present. The Kahn was negative.

The patient ran a low-grade fever ranging from 98-100°. The jaundice fluctuated, with icterus indices of 80, 72, 69, 76, 114, 70 and 75 over a period of 3 months. The urine revealed urobilinogen on some occasions and none on others. The cephalin flocculation test was negative at first and then became 1-2. The patient continued to have nausea and the jaundice persisted. Exploratory operation was advised but the patient refused to undergo this procedure and left the hospital two months after admission.

Second Admission: The patient reentered the hospital five days later. She had been "no worse and no better" and had returned for an operation. The sensorium was not clear. There were dilated superficial veins over the left chest but no abdominal caput medusae. There were marked ascites and some generalized abdominal tenderness. The liver was again found to be markedly enlarged, about 8 fingerbreadths below the right costal margin; the liver edge was slightly tender, smooth and non-nodular. Jaundice was generalized. The temperature was 98°, respiration 20, pulse 70, and blood pressure 110 systolic and 70 diastolic. The red blood cells numbered 4,110,000; and the hemoglobin was 81%. The white blood cells numbered 10,050. The icterus index was 80. The blood cholesterol was 387.

The day following readmission an abdominal paracentesis was performed and 1,000 cc. of clear yellow fluid were removed. The next day an exploratory laparotomy was performed. Following this the patient seemed to improve. The icterus decreased temporarily and the sensorium cleared somewhat. About one week later the icterus increased. An abscess developed on the lateral surface of the left arm. The patient became worse and died on the 17th hospital day.

CLINICAL DISCUSSION—DR. McLESTER

The elderly patient had a relatively short and stormy illness characterized by the following

SALIENT FEATURES

Pain in right upper quadrant of abdomen
Nausea and vomiting
Weakness and weight loss
Jaundice
Large, smooth liver
Ascites

Febrile episodes
Laboratory evidences of gross liver impairment

It should be added that the operative notes describe a dilated gallbladder containing "sand," and a patent but dilated common duct. This last is significant.

I think it fair to assume from this evidence that the patient had an enlarged and damaged liver with dilatation of the gallbladder, and obstruction, though incomplete, of the common bile duct. What could have produced this bizarre symptom-complex?

First of all, why the enlarged liver? Obviously this organ had impaired function. The short illness suggests the possibility of subacute yellow atrophy. But the enlargement of the liver and the portal obstruction, as evidenced by the ascites, speak against this. My inclination is to say that, among other things, she had cirrhosis of the liver.

Why the dilated common duct? Apparently there was no stone in the duct. It seems fair, therefore, to assume a tumor of the ampulla of Vater or pressure on this structure from an adjacent organ, say from the head of the pancreas. Did she have a carcinoma of the head of the pancreas? I would be inclined to say yes.

Physician: It seems to be a very puzzling case. There are definite complications. Is the inference correct that the enlargement of the liver was symmetrical?

Dr. Riser: The right lobe was markedly enlarged and the left was practically normal.

Dr. Paul Burleson, Junior Resident in Medicine: I saw this case on the ward. There was a nodular type of enlargement, the right lobe being much larger than the left. The left was not greatly enlarged.

Physician: It seems there are three features to consider. One is the incomplete and moderate degree of biliary obstruction and evidences of infection. The fever and the leucocytosis apparently represent a process which is not involving the liver as a whole. That leads one to wonder if it is fundamentally an infectious process, an abscess perhaps of the right lobe of the liver. This does not fit the picture completely, but it is hard for me to reconcile otherwise the difference between the right and left lobes of the liver.

Physician: I suggest Weil's disease.

Dr. McLester: Two things were obvious: a damaged liver and obstructive jaundice. I don't think Weil's disease would account for the obstructive jaundice.

Dr. James H. Walker, Assistant Resident in Medicine: Could this be an acute infectious hepatitis?

Dr. McLester: The clinical picture was not that of an infectious hepatitis.

Student Frank Waldo: What about the relative eosinophilia?

Dr. Howard L. Holley, Senior Resident in Medicine: That is seen in malignancies very often.

Student Ira Patton: Is it true that carcinoma of the head of the pancreas produces painless jaundice?

Dr. McLester: That is the rule, but we must remember that this patient also had disease of the gallbladder. That would account for the tenderness in the right upper quadrant.

Dr. Holley: Speaking of cirrhosis of the liver, is not this a case of biliary cirrhosis?

Dr. McLester: That is a prominent possibility. Also, we cannot entirely ignore the gallbladder. It was dilated and contained "sand." Apparently it was diseased, and this may explain the evidences of infection. Cholecystitis, however, was not a dominant feature of the illness. Portal obstruction with impairment of the liver and partial obstruction of the common bile duct were the dominating features of this patient's illness. I would, therefore, offer the following

CLINICAL DIAGNOSIS

Cirrhosis of the liver
Carcinoma of the head of the pancreas or of the ampulla of Vater

PATHOLOGICAL DISCUSSION—DR. BAKER

At autopsy the intense jaundice was noted. The abdominal cavity contained no fluid, but straw-colored fluid had been removed at operation. There was no peritonitis. The liver was yellow because of jaundice. It was not nodular. The right lobe was large and the left small. The liver weighed 1600 grams. (Normal: 1200 gms.). The gallbladder was greatly dilated, as were the cystic and common bile ducts. The head of the pancreas was hard. The tail of the pancreas was atrophic.

From a study of microscopic sections, the tumor of the head of the pancreas was shown to be an adenocarcinoma which had metastasized to adjacent lymph nodes and as a minute focus to the left lung. There was obstructive jaundice, early biliary cirrhosis, and chronic cholecytitis. I believe the fever and leukocytosis were caused by mild necrotizing hepatitis, secondary to the obstructive jaundice. There was chronic cholecystitis, but it was of minimal degree.

ANATOMICAL DIAGNOSIS

Adenocarcinoma of head of pancreas
Minute metastases to regional lymph nodes and to left lung
Stenosis of pancreatic and common bile ducts at ampulla of Vater
Dilatation of these ducts and of the gallbladder
Interstitial fibrosis of pancreas
Jaundice
Biliary cirrhosis
Chronic cholecystitis
Intramural fibromyomata uteri
Chronic cystic cervicitis

Dr. McLester: Are there any questions or comments?

Physician: Why did not the surgeon recognize the tumor of the head of the pancreas at operation?

Dr. McLester: Dr. Baker said it took a long time to discover this at autopsy; it was not easy to find.

Dr. Baker: I wish you would all look at this gross specimen. You can hardly recognize the tumor.

AMERICAN MEDICAL ASSOCIATION NEWS

DOCTORS WOULD FAVOR NATIONAL SERVICE BILL IN EVENT OF WAR

ANALYSIS OF 2,322 CIVILIAN PHYSICIANS' QUESTIONNAIRES REVEALS 76% MORE PATIENTS TREATED DURING WAR

A national service bill that would require all doctors to serve the government in some capacity in the armed forces or in civilian communties in the event of another national emergency has been proposed by physicians who recently were surveyed as to their opinions by the American Medical Association.

Approximately 5,000 questionnaires were sent to physicians, selected at random, who were in civilian practice during the war, by the Committee on National Emergency Service of the A. M. A., of which Dr. Edward L. Bortz, Philadelphia, president-elect of the association, is chairman. The questionnaire provided an opportunity for those who were responsible for civilian care in those years to indicate what changes should be made in the mobilization of medical service in future emergencies.

Frank G. Dickinson, Ph. D., Director of the Bureau of Medical Economic Research of the A. M. A., presents an analysis of 2,322 answering questionnaires in the May 24 issue of The Journal.

More than three-fourths of the physicians indicated that in the event of another national emergency, a board representing the medical profession should be empowered to set the policy for the utilization of all physicians. The overwhelming majority of those favoring this policy said that this board should set the policy for the utilization of both military and civilian physicians.

Approximately 60 per cent of the doctors also voted their agreement to a national service bill that would require all physicians to serve the government in some capacity in the armed forces or in civilian communities.

Other results of the survey indicated that:

68.3 per cent of the doctors believe that all qualified civilian physicians should be required to serve in rotation on Selective Service Boards in their communities in the event of another national emergency.

65.6 per cent of the physicians feel that if more doctors had been released from their communities for military service it would have endangered the welfare of the civilian population.

55.8 per cent of the doctors believe that the community could not have been served in a reasonably adequate manner

if there had been a large scale epidemic; 44.8 gave as one reason the insufficient number of physicians; 46.9 per cent gave an insufficient number of nurses as the reason; 7.9 gave inadequate supply of commonly used drugs and equipment and 6.8 per cent gave insufficient hospital facilities as the reason.

53.3 per cent think that civilian nursing and technical personnel was unduly and dangerously reduced by induction into the armed forces.

This cross section of physicians also indicated that they treated 76 per cent more patients in 1944 than in 1941 and were called on during this period to see approximately three-fourths more patients.

Dr. Dickinson feels that it is significant that 80.8 per cent of the physicians favor the formation of mobile civilian medical teams to supply areas stricken by epidemics and atomic or bacteriologic warfare. "It seems clear," states the author, "that if 81 per cent of the doctors are willing to support the formation of mobile civilian medical teams they are certainly aware that in the next war the task of taking care of civilians 'after the storm' may be a greater medical problem than the medical care of military personnel. The vote on this question clearly indicates that the civilian doctors of America are aware of the serious implication of possible atomic and bacteriologic warfare."

A series of questions asking the physician to state his opinion as to which of the listed civilian services were unnecessarily depleted in his community were checked as follows: 46.1 per cent checked hospital facilities as being unnecessarily depleted, 34.4 per cent checked private practice, 12.4 per cent checked medical education, 6.5 per cent checked public health, 2.7 per cent checked industrial medicine and one per cent wrote "Nursing" in the blank for Other.

ONLY TREATMENT FOR GALLSTONES IS SURGICAL REMOVAL, DOCTOR SAYS

The only proper treatment for gallstones is their surgical removal, with the gallbladder if possible, in order that this non-essential organ may not again become a "stone factory" and place the patient's life in jeopardy, according to Lester R. Whitaker, M. D., of Portsmouth, N. H.

Writing in the current issue of Hygeia, health magazine of the American Medical Association, Dr. Whitaker says that gallstones are a menace to the individual who carries them because they may block the bile passages.

"If the block is in the outlet of the gallbladder it becomes distended and acutely inflamed, and may rupture; if the block is in the main duct leading from the liver into the intestine, jaundice results, and eventually the bile ducts and the liver become infected," states the author. "It is believed that even cancer of the gallbladder may develop from the irritation of the stones."

A gallstone may "jam" in the duct because the gallbladder contracts after a person eats in order to push out the bile during digestion and the stone is too large to go through. When a gallstone becomes "jammed" trouble really begins. Since the gallbladder cannot be emptied of its bile and secretions, it is distended, and produces symptoms ranging from "indigestion and gas discomfort" to intolerable pain called "gallstone colic," in which the patient feels that his midriff is going to burst open or be crushed in. After a few attacks of "gallstone colic" the patient generally agrees to have a surgical operation for removal of the stones.

"But the symptoms are not always so severe nor the patient so easy to convince," writes Dr. Whitaker. "In such a case the presence of stones can be determined by x-rays with the 'Graham test,' named for its inventor. When well done this test will prove the presence of stones in over 90 per cent of the cases."

The author emphasizes that once a diagnosis of gallstones has been made they should be removed before complications such as have been mentioned set in. In order to dispel the false belief that the patient can never be quite well after removal of the gallbladder, the physician points out that the gallbladder is a nonessential organ. Some animals like the rat, horse and deer do not have one. If the gallbladder is removed before other organs around it become diseased, recovery will be complete.

A common query of gallstone sufferers is: "Can my gallstones be made to pass?" The

author's reply to this is that if the "gallstones could have passed they would have been pushed out by the normal contraction of the gallbladder after meals. No medicine or method will give the gallbladder more 'push' than an ordinary mixed meal; and the bile passages are tight and tortuous. The gallstones shown by x-rays are those that cannot pass—and the attacks are caused by their trying to do so." He also points out that there is no method for dissolving gallstones.

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